# A LAMINATED CARBONATE RECORD OF LATE HOLOCENE PRECIPITATION FROM MARTIN LAKE, LAGRANGE COUNTY, INDIANA

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Precipitation trends and their driving mechanisms are examined over a variety of spatial and temporal scales using a multi-proxy, decadally-resolved sediment record from Martin Lake that spans the last 2300 years. This unique archive from a northern Indiana kettle lake documents significant climate variability during the last 2 millennia and shows that the Midwest has experienced a wide range of precipitation regimes in the late Holocene. Three independent proxies (i.e., oxygen and carbon isotopes of authigenic carbonate and %lithics) record variations in synoptic, in-lake and watershed processes related to hydroclimate forcing, respectively. Together, these proxies reveal enhanced summer conditions, with a long period of water column stratification and enhanced summer rainfall from 450 to 1200 CE, a period of time that includes the so-called Medieval Climate Anomaly (950-1300 CE). During the Little Ice Age, from 1260 to 1800 CE, the three proxy records all indicate drought, with decreased summer rainfall and storm events along with decreased lake stratification. The Martin Lake multi-proxy record tracks other Midwest climate records that record water table levels and is out-of-phase with hydroclimate records of warm season precipitation from the High Plains and western United States. This reveals a potential warm season precipitation dipole between the Midwest and western United States that accounts for the spatial pattern of late Holocene drought variability (i.e., when the Midwest is dry, the High Plains and the western United States are wet, and vice versa). The spatiotemporal patterns of late Holocene North American droughts are consistent with hydroclimate anomalies associated with mean state changes in the Pacific North American teleconnection (PNA). Close associations between late Holocene North American hydroclimate and records of Northern Hemisphere temperatures and the Pacific Ocean-atmosphere system suggests a mechanistic linkage between these components of the global climate system that is in line with observational data and climate models. Based on our results, predominantly –PNA conditions and enhanced Midwestern summer precipitation events are likely to result from continued warming of the climate system. In the western United States, current drought conditions could represent the new mean hydroclimate state.

Broxton Bird, PhD, Chair

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## 1.0 Introduction

Prolonged and severe North American droughts are not uncommon during the Holocene (Winkler et al., 1986). Understanding their causes, spatial patterns and relationship with temperature change is critical in order to better assess modern drought sensitivity and risk. Although the Midwest has not experienced prolonged drought since the 1950's (Andresen et al., 2012), the major ongoing drought in California has highlighted the threats to agriculture and drinking water these conditions carry with them. Additionally, the single year Midwest drought in 2012 caused significant damage to crop yields and high crop loss ratios across the Midwest (Schnitkey, 2013). During the Medieval Climate Anomaly (MCA, 950—1250 CE), several so-called "megadroughts" (multi-decade droughts) have been identified in the Western United States and the Great Plains, with smaller scale droughts during the Little Ice Age (LIA, 1350—1850 CE; Cook et al., 2007; Laird et al., 1996; 1997). The future occurrence of megadroughts, similar to those during the MCA and LIA is one hypothesized response to increasing global temperatures as a result of anthropogenic greenhouse gas emissions and land-use changes. The spatial pattern of these paleo droughts is not well known for much of the American Midwest, however, because high-resolution, precipitation-sensitive paleoclimate records have yet to be fully developed for this region.

Here, we present a sub-decadally resolved multi-proxy record of Midwestern hydroclimate variability from Martin Lake, northeastern Indiana based on the oxygen and carbon isotopic composition of authigenic carbonate and the sedimentary abundance of detrital clastic material. This unique archive documents changes at multiple spatial scales: North American synoptic scale isotope hydrology, local scale watershed precipitation intensity, and in-lake water column stratification. The combination of proxies used here creates a more complete picture of Midwestern precipitation over the last 2,300 years that, when compared with existing North American paleoclimate records, can help us better understand the driving mechanisms behind long term drought in this climatologically sensitive area.

## 2.0 Study Area

Martin Lake is a small kettle lake in northeastern Indiana that formed during the final retreat of the Laurentide Ice Sheet approximately 16,000 years ago (41.564°, -85.384°, 274 m ASL; Figure 1A). Today, Martin Lake is 17.1 m deep with a small 0.1 $km^2$ surface area, steep sides and a flat bottom (Figure 1C). The lake's 12.9 $km^2$ catchment sits on an approximately 100 m thick deposit of unconsolidated, poorly sorted clayey glacial till of Wisconsin age, under which lies Devonian age shale (Fleming, 1994). Average annual precipitation for the area is 918.5 mm $yr^{-1}$, which results in approximately $1.18\times10^7$ $m^3$ of precipitation over the catchment. This volume of precipitation is an order of magnitude greater than the volume of Martin Lake ($1.11\times10^6$ $m^3$), resulting in hydrologically open conditions and a mean residence time of 103 days (Figure 1B; JFNew, 2009).

Despite its open hydrology, the steep sided lake basin morphology and climatological setting (strong seasonal changes in temperature) favor water column stability, which is reflected in measurements that show a consistently stratified water column with perennial bottom water anoxia, though mixing may have occurred occasionally (Wetzel, 1973). There are a number of ephemeral streams in the catchment, the largest of which feeds directly into the east side of Martin Lake. Water flows from this stream to an outlet into Olin Lake on the west side. The modern catchment is mostly farmland, but was likely forested prior to land clearance in the 19$^{th}$ century CE.

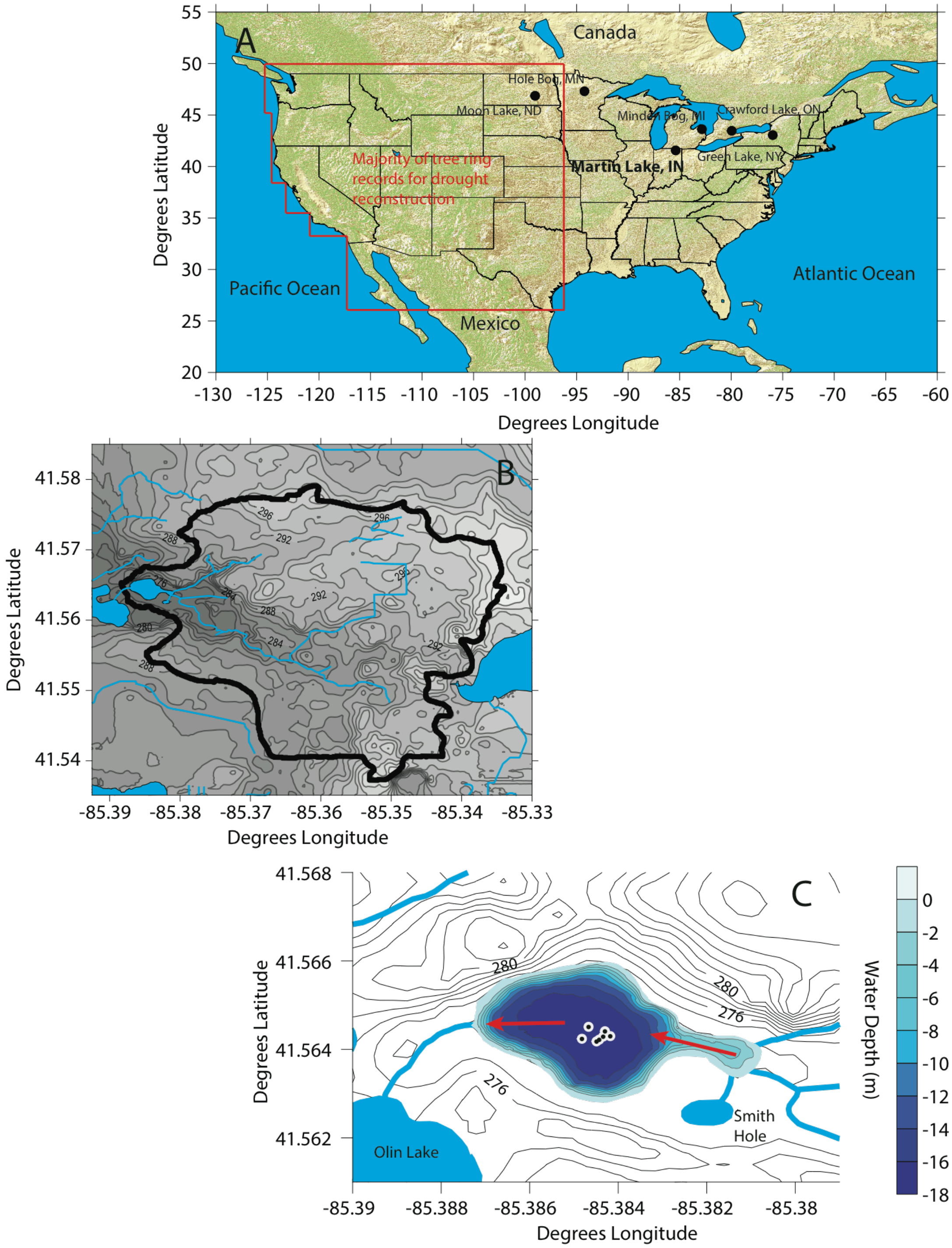



Figure 1: A) Map of North America showing Martin Lake and the locations of other paleoclimate studies (Booth et al., 2006b; Cook et al., 2007; Kirby et al., 2002; Laird et al., 1996; Zhao et al., 2010). B) Contour map of the Martin Lake catchment. C) Bathymetric map of Martin Lake. Black circles mark locations from where cores were collected. Red arrows show the direction of inflows and out flows

## 3.0 Methods

### *3.1 Core Collection*

A series of surface and long sediment cores were retrieved from the center of Martin Lake in 17 meters of water between May and October 2013 using modified piston corers (Figure 1C; Appendix A; Cushing and Wright, 1965; Wright et al., 1984). Undisturbed samples of the sediment-water interface were also collected using a freeze coring system. Approximately 12 m of sediment were retrieved before stiff, clay-rich, poorly sorted sediments prevented additional sediment recovery. Core segments overlapped by 30 to 50 cm were correlated based on visual identification of similar stratigraphic units to create a single composite record measuring 626.7 cm. The remaining sediment, from 626.7 to 1166.3 cm, was not counted as part of the composite core due to visual evidence of slumping and soft sediment deformation.

### *3.2 Sedimentology*

All cores were transported to the IUPUI Paleoclimatology and Sedimentology Laboratory where they were split into archive and working halves and imaged using a GeoTek MSCL high-resolution core scanner with cross-polarized LED lighting. Magnetic susceptibility (MS; SI; x$10^{-5}$) was measured on the archive core half using a Bartington MS2E point sensor at 0.5 cm intervals on split core sections left at room temperature for 12 h to ensure equal temperature (Appendix C). Subsamples (1 $cm^3$) were collected from the work half of each core at 2.0 cm intervals, dried for 24 hours at 60˚ C, and then weighed to determine their dry bulk density ($\rho_{dry}$; $g/cm^3$;

Appendix B). These samples were then combusted at 550° C for 4 h and 1000° C for 2 h with their weights measured after each combustion to determine percent weight loss for total organic matter (%TOM) and percent total inorganic carbon (%TIC; carbonate), respectively (method modified from Heiri et al., 2001). X-ray diffractometry (XRD) and scanning electron microscopy (SEM) were used to identify the mineral phase of sedimentary carbonates and their crystal morphology of 7 samples equally spaced down core.

*3.3 Age Control*

The radiocarbon ($^{14}C$) ages of nine samples of charcoal fragments and terrestrial plant material were determined by accelerator mass spectrometry (AMS) at the University of California Irvine. Samples were collected using a binocular microscope and fine tipped brush after disaggregation with a weak 7 % hydrogen peroxide solution and sieving at 63 μm. All radiocarbon samples and standards were pretreated at IUPUI with an acid-base-acid wash (1 N HCl and 1 N NaOH) following the UC Irvine KCCAMS Facility acid/base/acid sample pre-treatment protocol. AMS $^{14}C$ ages were calibrated to calendar years before present (y BP) using the online application CALIB (Reimer et al., 2013). The online application CALIBomb was used for the uppermost sample because it contained excess $^{14}C$, indicating it contained bomb $^{14}C$ and was therefore younger than 1950 AD. Although the Martin Lake core contains nearly continuous millimeter-scale laminae resembling varves, these structures were absent in the upper most part of the core, which precluded our ability to count layers and establish a varve chronology.

*3.4 Carbonate Sampling*

Sediments were sampled continuously at 0.5 cm intervals for calcite oxygen and carbon isotope analysis ($\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$). Each sample was disaggregated in a 7 % hydrogen peroxide solution, wet sieved at 63 μm to isolate fine grained carbonate and treated with a 50 % bleach for 6 h at 60˚ C to remove biogenic silica. After freeze-drying, samples and international standards (NBS-18, NBS-19, and IAEA-CO9) were purged in sealed vials with helium for 5 min before being reacted with 100 % phosphoric acid at 70˚ C for at least 1 h. All carbonate isotope measurements were made at the Indiana University-Purdue University Indianapolis Stable Isotope Biogeochemistry Laboratory on a Thermo MAT 252 stable isotope ratio mass spectrometer coupled with a GasBench II system. Results are reported in delta notation relative to Vienna Pee Dee Belemnite (VPDB) using the international standards NBS-18 NBS-19, and IAEA-CO9.

*3.5 Grain Size*

Approximately 1.0 g of wet sediment was collected at 1 cm intervals from 0 to 354.45 cm for grain size analysis. Following Gray et al. (2010), samples were dried at 60˚ C for 24 h, weighed, and then soaked for 24 h in a 50 mL aliquot of 35 % $H_2O_2$ at room temperature to begin the process of removing organic material. Three to five additional 20 mL aliquots of 35 % $H_2O_2$ were applied at 65˚ C, followed by a rinse with DI water. Biogenic silica was removed by soaking samples in a 20 mL 1 N NaOH solution for 8 h at 60˚C while carbonates were digested with a 1 N HCL solution for 1 h at room temperature. Following these treatments, samples were freeze-dried and weighed again to calculate the abundance of lithic and mineral fragments (%lithics). A sodium metaphosphate solution was added to the samples at least 24 h prior to grain size analysis in order to disaggregate clays. Prior to analysis, samples were sonicated for 30 seconds. Grain size abundances of the lithic fraction were measured at IUPUI using a Malvern Mastersizer 2000. Each sample was measured three times with the reported values being the average of these results.

### *3.6 Meteoric and Surface Water Isotope Measurements*

Event-based precipitation data was collected in Indianapolis, IN, between June 1, 2014 and May 31, 2015 using a rainfall collector that effectively eliminates evaporation (modified from Gröning et al., 2012). Precipitation amounts were both measured at the collection site and gathered from local meteorological stations and used to calculate weighted monthly averages for the isotope ratios of oxygen and hydrogen ($\delta^{18}O$ and $\delta D$, respectively). River water samples from the White River and Fall Creek, IN, were collected at least monthly for Fall Creek and bi-monthly for the White River between November 2014 and May 2015. Water samples from natural lakes, reservoirs and impoundments across Indiana, collected between May 2010 and May 2015 as part of the Indiana Clean Lakes Project at Indiana University, were also analyzed for $\delta^{18}O$ and $\delta D$ ($n = 345$). All water samples were analyzed at IUPUI for $\delta^{18}O$ and $\delta D$ using a Picarro L2130-i Analyzer coupled to an autosampler and high-precision water vaporizer unit.

## 4.0 Results

### *4.1 Sedimentology*

Sediments at Martin Lake are finely laminated for most of the record (Figure 2A). From 0 to 63.5 cm, sediments are mottled, with no persistent laminations present. The laminations that do exist in this upper part of the core are folded, showing signs of soft sediment deformation. The sediments in the top 63.5 cm of the core consist mostly of silt and clay, with occasional small sections (1.0 cm) containing larger amounts of sand (up to 50%). These sediments also contain an average of 14.3% organic matter and 11.4% carbonate, with the remaining sediment consisting of lithic and mineral fragments and biogenic silica (Figure 3).

Below 63.5 cm, sediments are finely laminated, with mm-scale laminae alternating between dark and light colors. These sediments still consist mostly of silt, which ranges from 35.6 to 91.0% of the lithic fraction, with lesser contributions of clay and sand. For several small portions of this part of the core, there are no sand sized grains present in the sediments. This part of the core also contains less carbonate, which averages 6.6%, and more organic matter, which averages 32.4%.

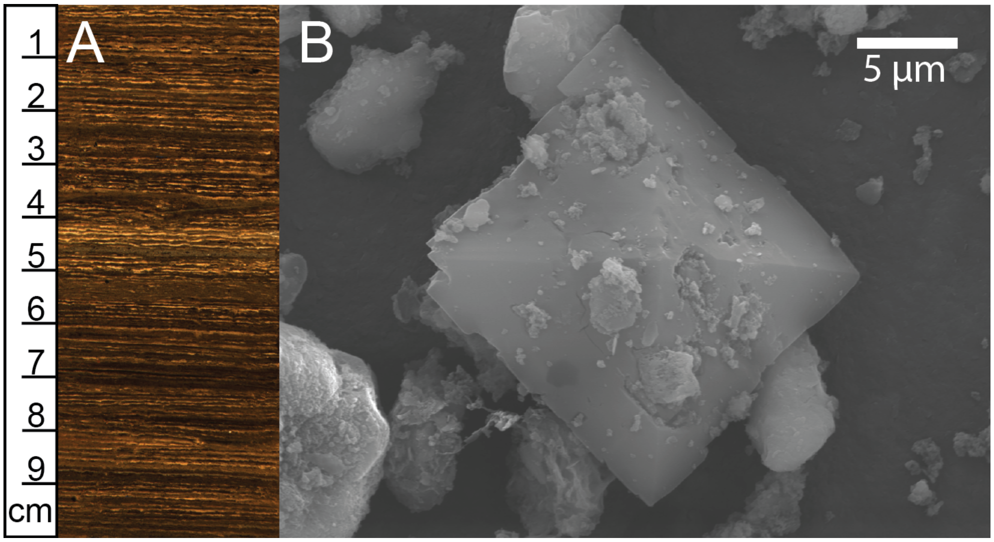
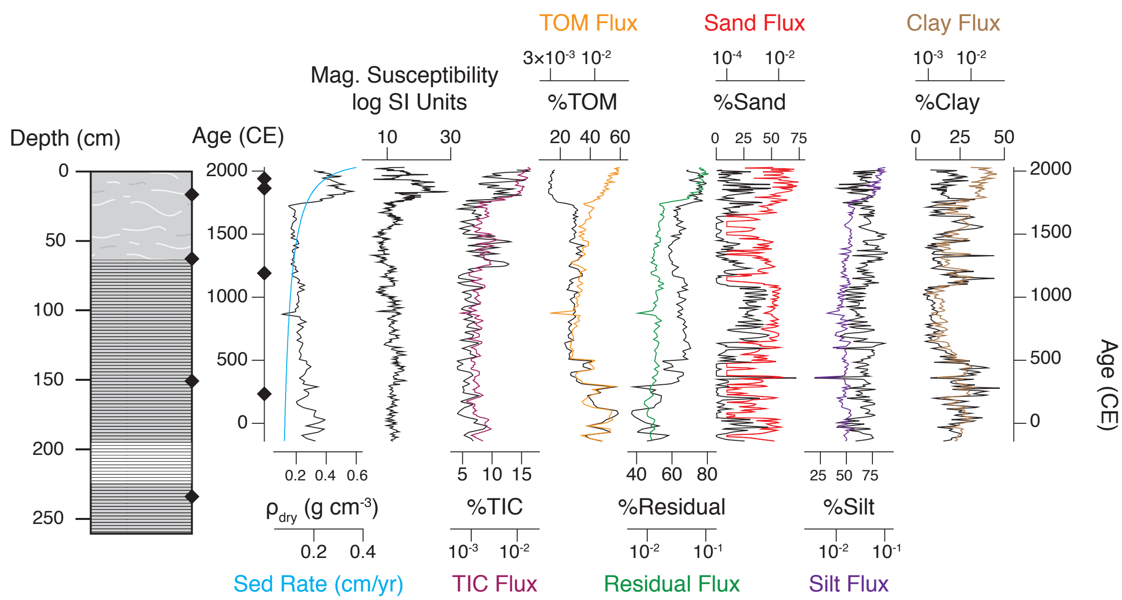



Figure 2: A) Digital image core from Martin Lake showing mm-scale laminae. B) SEM image of calcite crystal from a light band of Martin Lake sediment.

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*4.2 Age Control*

The nine $^{14}C$ ages spanned from 1983 CE to 4670 BCE. An age model was developed by fitting a fourth order polynomial to the radiocarbon ages (Figure 4). The age model shows that the sedimentation rate consistently increased throughout much of the record before an exaggerated acceleration around 1800 CE (Figure 3).

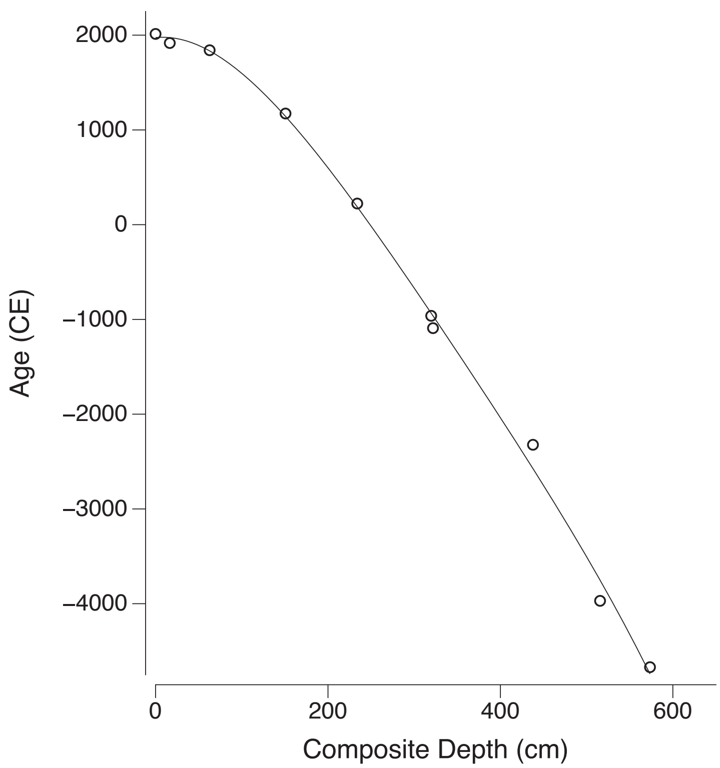


Figure 4: Graph of Martin Lake $^{14}C$ samples plotted against depth. The dots represent individual samples. The line shows the fourth order polynomial that composes the Martin Lake age model.

*4.3 Carbonate Isotopes*

Sample sizes for each carbonate analysis had to be adjusted to account for the large amount of residual material making it through the carbonate isolation process. However, 274 samples were successfully analyzed for an average resolution of 8.5 years per sample (Figure 7A&B; Appendix D). $\delta^{18}O_{cal}$ measurements averaged -10.7 ‰ VPDB with a range of 10.2 ‰. Duplicate analysis on 13 samples returned a standard deviation of 1.4 ‰ between the original measurement and the duplicate. $\delta^{13}C_{cal}$ measurements averaged -9.4 ‰ VPDB with a range of 20.5 ‰ and a standard deviation of 0.9 ‰. The variation between the duplicate analyses were high compared to the standards, but the amplitude of variation in the Martin Lake isotopes are large relative to the variability of the duplicates. The $\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$ time series showed significant covariance throughout the record ($R^2$ = 0.69).

The time series of the carbonate isotope ratios can be split into several distinct periods with noticeable trends. The earliest part of the Martin Lake carbonate isotope record is relatively high for both isotopes, peaking at 0 CE, followed by a decline to a local minima around 100 CE. Between 0 and 100 CE, $\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$ values decline from -8.8 ‰ to -14.9 ‰ and -6.5 ‰ to -15.8 ‰, respectively. Following 100 CE, both isotope values steadily increase until 800 CE, where they reach -8 ‰ in $\delta^{18}O_{cal}$ and -3.3 ‰ in $\delta^{13}C_{cal}$. Both $\delta^{18}O$ and $\delta^{13}C$ increase above their 2500-year averages at 450 CE and remain generally high until 1260 CE. From 800 to 900 CE, however, there is a rapid decrease in both isotope records. During this time, $\delta^{18}O_{cal}$ decreased by 6.7 ‰ and $\delta^{13}C_{cal}$ decreased by 12.9 ‰. After 900 CE, both $\delta^{18}O$ and $\delta^{13}C$ increased abruptly until 1000 CE, with $\delta^{13}C_{cal}$ reaching -5.1 ‰ and $\delta^{18}O_{cal}$ reaching its record maximum of -7.6 ‰. From 1000 to 1180 CE, both $\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$ remained fairly stable with averages above their mean values. Overall, the period from 450 to 1180 CE had moderately high isotope values.

From 1180 to 1450, both isotope records show increased variability and a trend toward generally lower values. By 1200 CE, both isotope records have values very similar to the 900 CE local minima. Following this drop, there is a rapid increase to the 2,300-year mean values at approximately 1280 CE. Isotope values show low-amplitude variations around the mean for a century, before the sudden decrease to the lowest values of the record around 1450 CE. At this point, $\delta^{18}O_{cal}$ reaches -16.5 ‰ and $\delta^{13}C_{cal}$ reaches -22.5 ‰. After 1450 CE, values for both isotope records increase to below mean values of approximately -12 ‰ and remain there from 1550 to 1700 CE. After 1700 CE, values increase over the next 100 years, reaching their modern values of -9.5 ‰ for $\delta^{18}O_{cal}$ and -7.5 ‰ for $\delta^{13}C_{cal}$. These values have remained consistent from 1800 CE to present.

*4.4 Grain Size and %lithics*

Grain size measurements show significant variability over the last 2,300 years. Results were broken up into the three main size fractions of sand, silt, and clay according to the Wentworth scale. Sand averaged 14.8 % of the lithic fraction with a range of 72.5 %, silt averaged 66.5 % with a range of 70.1 %, and clay averaged 18.7 % with a range of 43.2 % (Appendix E). The %lithics measurements at Martin Lake averaged 29.3 % of the total sediment by weight, with a range of 84.6 % (Appendix F). Removing the section of the time series after 1800 CE, which was around the time of settlement and land clearance at Martin Lake, reduces the average %lithics to 21.8 % with a range of 53.5 %.

The time series for %lithics is very similar to the isotope time series for much of the record. Here, we focus on %lithics rather than grain size abundances, because as our discussion will show below, it is a more direct indicator of precipitation driven erosion in the Martin Lake watershed; however, we occasionally use grain size data to accentuate certain parts of the %lithics time series. For the earliest part of the record, %lithics is around the pre-1800 CE mean, before abruptly increasing to 43.8 % around 0 CE. This is followed by a rapid decline to 14.5 % by 100 CE. This decrease in %lithics is accompanied by a decrease in the percentage of sand from 33.6 to 1.4 %. Following this decline, %lithics steadily increases until it reaches its pre-1800 CE mean around 450 CE.

Following 450 CE, %lithics continues to increase, reaching a local maximum of 53.5 % at 800 CE. From 800 to 900 CE, %lithics drops from 36.3 to 13.8 %, after which it is followed immediately by an increase from 13.8 to 43.1 % between 900 and 1000 CE. From 1000 to 1200 CE, %lithics is generally high, but with significant variability, with a rapid decrease to below-average levels at 1030 CE, followed by a rapid increase to 53.8% (the maximum value for the pre-1800 CE record) at 1130 CE. This is followed by another rapid drop and recovery between 1130 and 1200 CE, dropping to 2.0 %, and then increasing to 32.0 % over this 50-year period. After 1200 CE, %lithics decreased steadily until it reached almost 0 % at 1300 CE. %lithics remained at near 0 % until 1500 CE, when it increased to slightly below the mean value (with the exception of one data point above the mean at 1510). %lithics remained at approximately 18 % until 1600 CE, after which it decreased steadily, reaching nearly 0 % again immediately prior to 1800 CE. At approximately 1820 CE, %lithics increased rapidly to 80% by 1850 CE. Values have remained very high until present.

*4.5 Water Isotope Measurements*

Measured water isotopes from Martin Lake, Indianapolis rivers, other Indiana lakes and impoundments, and Indianapolis precipitation were all plotted together and regressions formed a local meteoric water line (LMWL) and a local evaporation line (LEL; Figure 5). Both of these regressions were highly correlated, with $R^2$ values of 0.98 and 0.93, respectively. The precipitation water isotope measurements had a broad range of values and roughly corresponded to the season in which it fell. $\delta^{18}O_{precip}$ values ranged from -29.7 to 0.9 ‰ VSMOW and $\delta D$ values ranged from -221.8 to 13.5 ‰ VSMOW. Precipitation with lower $\delta^{18}O_{precip}$ and $\delta D$ values tended to fall in the winter, and precipitation with higher values tended to fall in the spring and summer. The Indiana lakes and impoundments measurements formed the LEL, with measurements that diverge significantly from the LMWL representing a range of evaporative systems. The Indianapolis rivers and Martin Lake measurements clustered around the intersection of the LMWL and LEL, which also reflects the average isotopic composition of mean annual precipitation.

## 5.0 Discussion

### *5.1 Relationship Between $\delta^{18}O_{precip}$, $\delta^{18}O_{lw}$, and $\delta^{18}O_{cal}$*

Modern limnological and geochemical data from Martin Lake demonstrate a strong relationship between the oxygen isotope ratios of precipitation ($\delta^{18}O_{precip}$), lake water ($\delta^{18}O_{lw}$), and sedimentary calcite ($\delta^{18}O_{cal}$). $\delta^{18}O_{precip}$ is highly variable in the Midwest, changing according to season and moisture source. The LMWL formed by the event-based precipitation samples collected in Indianapolis, IN has a slope (7.73) that is very similar to the global meteoric water line (GMWL; 8; Figure 5). The modeled annual mean $\delta^{18}O_{precip}$ from the Online Isotopes in Precipitation Calculator (OIPC; Bowen et al., 2005) is -8.1 ‰ VSMOW at Martin Lake, with more negative values in the winter and less negative values in the summer. The annual mean of all samples analyzed after being weighted for the amount of precipitation collected was -7.60 ‰ VSMOW, with generally lower values occurring during the winter months and higher values in the spring and summer. This matches well with the average isotopic composition of Martin Lake (-7.57 ‰; n = 41), which was determined by water column samples that were collected at 4 m intervals from the surface to the bottom of the lake in May 2013, and 1 m intervals in October and November 2013 (Appendix G).

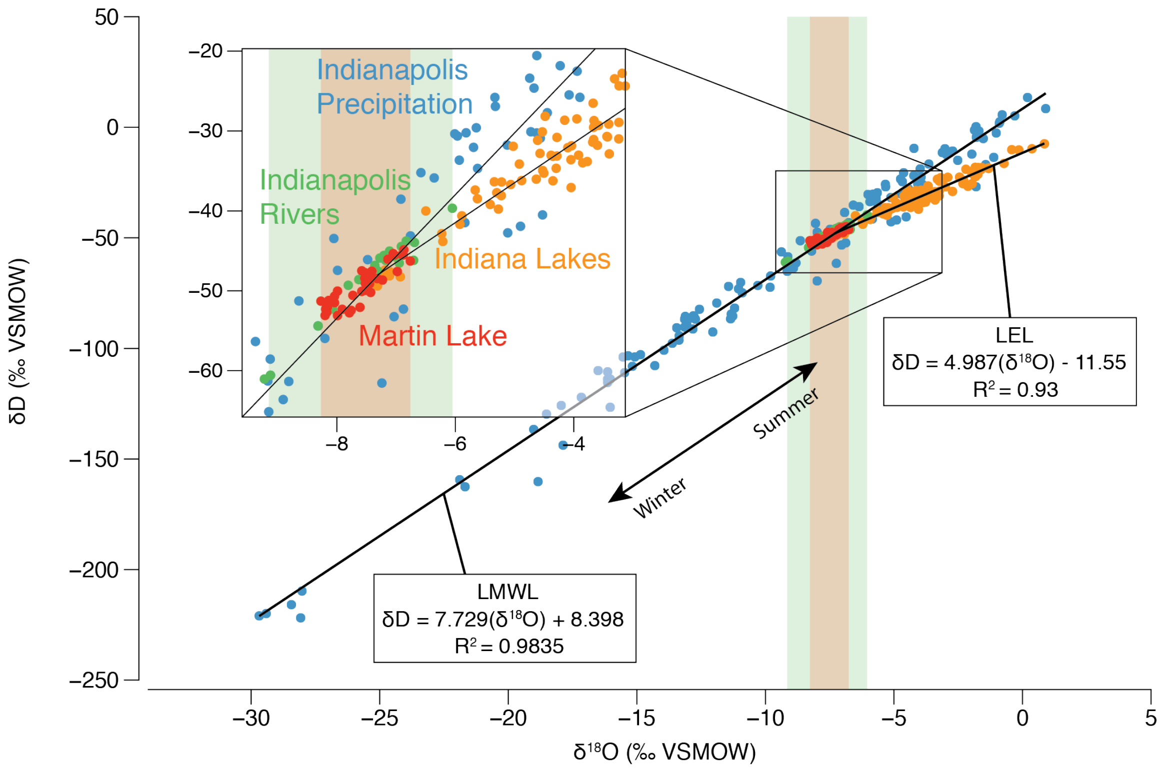


Figure 5: Scatterplot of water samples analyzed at IUPUI. Martin Lake water column samples are in red, Indianapolis river samples in green, Indianapolis precipitation samples in blue, and Indiana lake samples from the Indiana Clean Lakes Project in orange. The equations and $R^2$ values of the LMWL and LEL are shown. Blue circles in the lower left are representative of winter precipitation and samples in the upper right are representative of summer precipitation. The light red and green vertical bars represent the range of $\delta^{18}O$ values for Martin Lake and Indianapolis rivers, respectively.

Martin Lake is also isotopically similar to the White River and Fall Creek, two of the largest rivers in central Indiana, which supports the idea that the isotopic composition of Martin Lake's water column reflects the average isotopic composition of meteoric waters. This similarity between the Martin Lake water column and riverine water isotopes also provides further support for the assertion that Martin Lake is hydrologically open and that it reflects the isotopic composition of precipitation on a regional scale. Further support is derived from measured surface water samples from many lakes and impoundments around Indiana, which form a LEL that splits off from the LMWL and represents evaporative conditions in Indiana (Figure 5). The Martin Lake water column samples plot at the intersection of the LMWL and the LEL, indicating that Martin Lake waters have not evolved along the LEL. Together, these lines of evidence provide strong support that Martin Lake water is not evaporatively enriched and is representative of annual average precipitation (Leng and Marshall, 2004).

$\delta^{18}O_{cal}$ reflects the oxygen isotope value and temperature of the lake water in which the carbonate precipitates. The $\delta^{18}O_{cal}$ of the uppermost 4.5 cm of sediment, which represents the last 10 years, varies from -9.2 to -8.9 ‰ VPDB. A conversion from VPDB to VSMOW shows that $\delta^{18}O_{cal}$ and $\delta^{18}O_{lw}$ are equal within 0.3 ‰, assuming the calcite was precipitated at normal summer surface water temperatures (estimated 20.5˚C), which were measured at 18.28˚ C and 22.43˚ C in May and September 2013, respectively. These empirical observations support a simple oxygen isotope model where $\delta^{18}O_{cal}$ is precipitated in equilibrium with $\delta^{18}O_{lw}$ and reflects the annual average isotopic composition of lake water (i.e., precipitation).

*5.2 Temperature Effects*

Temperature-controlled oxygen isotope fractionation occurs during the transition from water vapor to precipitation (0.6 ‰˚$C^{-1}$) and during the precipitation of calcite from lake water (-0.24 ‰˚$C^{-1}$; Kim and O'Neil, 1997). As such, the net isotopic change in authigenic calcite is 0.36 ‰˚$C^{-1}$. If temperature alone was the primary influence on the isotopic composition of calcite at Martin

Lake, a 26.8˚ C change in temperature would be required to account for the 10.2 ‰ difference in $\delta^{18}O_{cal}$ values measured over the last 2,300 years in the record. This far exceeds possible changes in late Holocene temperature (around a 2˚ C range over the last 2,00 years), which indicates that processes other than temperature must dominate the Martin Lake $\delta^{18}O_{cal}$ record (Moberg et al., 2005).

Isotopic studies of precipitation from North America show that large seasonal variations occur in $\delta^{18}O_{precip}$ and $\delta D_{precip}$ (Kirby et al., 2002). These seasonal, variations, which are often related to the source of atmospheric moisture (Burnett et al., 2004), are much more likely to account for the large range of $\delta^{18}O_{precip}$ values observed at Martin Lake. This claim is supported by the wide (30 ‰) range of $\delta^{18}O_{precip}$ values in the Indiana LMWL over a one-year period.

### *5.3 Effects of Seasonality on $\delta^{18}O_{cal}$*

At Martin Lake, like much of the Midwest, there are large differences in temperature and precipitation between seasons. The average annual temperature is 9.0˚ C, with summer (June, July, August; JJA) and winter (December, January, February; DJF) temperatures averaging 21.0˚ C and -4.1˚ C respectively, with transitional seasons lying between the two. Average monthly precipitation at Martin Lake is 76.5 mm/month, with a JJA maximum (96.0 mm/month) and DJF minimum (51.0 mm/month; Figure 6). During the winter, day-to-day conditions are heavily dependent on the orientation and position of the Polar Front Jet Stream (PFJS), but this connection weakens during the summer, when frequent incursions of warm, humid air masses from the tropics deliver increased atmospheric moisture

(Andresen et al., 2012). In the summer, the Midwest is susceptible to extreme precipitation events, where a few large, discrete events, typically thunderstorms associated with migratory cyclones from the Gulf of Mexico, can deliver a large proportion of annual precipitation to the area (Heideman and Fritsch, 1988). The 10 largest precipitation events deliver between 30 % and 50 % of the total annual precipitation on average, increasing from east to west within the Midwest (Pryor et al., 2009). This susceptibility to extreme summer precipitation leaves the Midwest at risk of flash flooding through the spring and summer. Winter snowfall is typically driven by synoptic scale disturbances, such as winter cyclones from the northern Rocky Mountains, and can vary greatly from year to year and across short distances (Andresen et al., 2012; Whittaker and Horn, 1981).

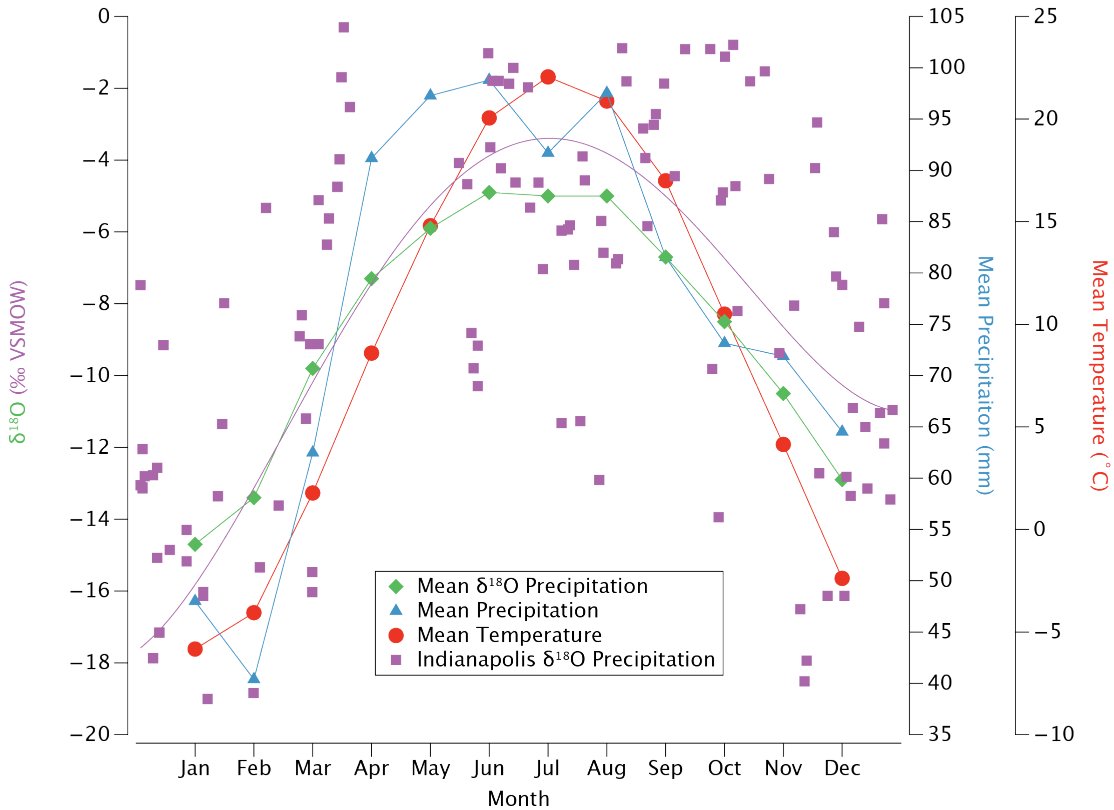


Figure 6: Graph of precipitation and weather data with modeled monthly mean $\delta^{18}O_{precip}$ in green diamonds; measured Indianapolis precipitation event $\delta^{18}O_{precip}$ in purple squares, with a fourth order polynomial fit curve ($R^2 = 0.447$, n = 165); monthly mean precipitation in blue triangles; and monthly mean temperature in red circles. Modeled precipitation isotopes are from the OIPC (Bowen et al., 2005; Bowen and Wilkinson, 2002). Indianapolis event-based precipitation samples were measured at IUPUI. Weather data was collected from a weather station in LaGrange, IN (GHCN Station ID USC00124730).

Air masses associated with the westerlies can come to the Midwest from a variety of source areas, of which four principle regions dominate: 1) Pacific Northwest, 2) Gulf of Mexico, 3) Northwest Canada, 4) Northeast Canada (Shadbolt et al., 2006). These air masses bring atmospheric moisture from different sources, which can influence $\delta^{18}O_{precip}$ for individual precipitation events in the Midwest (Shadbolt et al., 2006). In general, the more northward the source of precipitation is, the lower the $\delta^{18}O_{precip}$ values are (Burnett et al., 2004). A large portion of Midwest precipitation throughout the year is delivered through migratory extratropical cyclones, which can originate on the leeward side of the Rocky Mountains, in the Gulf of Mexico, or in the Midwest itself (Heideman and Fritsch, 1988; Isard et al., 2000; Whittaker and Horn, 1981).

Midwest climate has been statistically connected to a few global atmospheric teleconnection indices, mostly of Pacific origin. These teleconnections are most strongly expressed during winter because of their influence on the position of the PFJS (Andresen et al., 2012). The Pacific North American (PNA) pattern is directly linked to PFJS orientation, with a positive phase PNA (PNA+) exhibiting more meridional jet stream flow and negative phase PNA (PNA-) exhibiting stronger zonal flow (Leathers et al., 1991). Meridional PFJS flow brings dry, arctic air down into the Midwest, while zonal flow enhances extratropical cyclone formation in the Gulf of Mexico and the Rocky Mountains, delivering humid air masses to the Midwest. The PNA is negatively correlated with both temperature and precipitation across the Midwest throughout the year, though the connection is strongest in winter (Coleman and Rogers, 2003).

The PNA and El Niño Southern Oscillation (ENSO) are strongly linked because they are both driven by heat distribution in the tropical Pacific Ocean (Clement et al., 1996). The PNA links sea surface temperatures (SST) in the tropical and extratropical Pacific through ocean-atmosphere dynamics (Cai and Whetton, 2001). In the Midwest there is a positive correlation between climate and ENSO, where positive phase ENSO (El Niño), is associated with weaker winds, decreased precipitation, and milder winter temperatures, while the negative phase (La Niña) is associated with extremes in temperature (high or low) and increased winter precipitation (Andresen et al., 2012). These teleconnections are not as strong in the summer and transitional seasons due to a decreased dependence on the PFJS.

Precipitation $\delta^{18}O$ follows a seasonal trend similar to precipitation amounts and air temperature, in that it is highest in the summer months and lowest in the winter. This trend has been associated with an increased supply of atmospheric moisture from southern sources, particularly the Gulf of Mexico, during summer months (Drummond et al., 1995). These southern moisture sources have a higher $\delta^{18}O$ than do arctic and Pacific Northwest moisture sources (Bowen et al., 2005; Kirby et al., 2002). Modern investigations of the relationship between $\delta^{18}O_{precip}$ and atmospheric teleconnections are hampered by limited long-term precipitation isotope data. Paleoclimate studies, however, have suggested a negative correlation between PNA and $\delta^{18}O_{precip}$ in the Midwest (Liu et al., 2012; 2014).

### *5.4 $\delta^{18}O_{cal}$ – $\delta^{13}C_{cal}$ Covariance and precipitation seasonality*

Hydrologically open lakes typically show a poor correlation ($r < 0.5$) between the isotope ratio of carbon ($\delta^{13}C_{cal}$) and $\delta^{18}O_{cal}$ in sedimentary calcite because $\delta^{18}O_{precip}$ is typically independent of in-lake primary productivity and water column stability (Leng and Marshall, 2004). Productivity influences the isotopic composition of the dissolved inorganic carbon pool (DIC) in the epilimnion, where carbonate precipitates, and hence $\delta^{13}C_{cal}$ through the preferential biological uptake of $^{12}C$ during photosynthesis (Talbot, 1990). In open Midwest lakes however, covariance between $\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$ has been observed in Holocene lake sediment records and linked to the regional co-occurrence of summer productivity, thermal stratification and delivery of $^{18}O$-enriched summer rainfall from southern moisture sources via southwesterly to southeasterly low level winds (Drummond et al., 1995). In essence, the longer that a lake is thermally stratified, the more $^{12}C$ will be exported to the hypolimnion and sequestered there, driving up $\delta^{13}C$ in the epilimnion where calcite is precipitated. Periods where the duration of water column stratification is reduced will conversely result in greater recycling of $^{12}C$ and hence lower $\delta^{13}C$. As a result, a predominance of conditions characteristic of summer increases both $\delta^{13}C$ (prolonged thermal stratification) and $\delta^{18}O$ (southern moisture), whereas lower $\delta^{13}C$ (reduced thermal stratification) and $\delta^{18}O$ (westerly and/or northern moisture) would characterize periods dominated by longer or more severe winter conditions and shorter summers. The strong correlation between $\delta^{18}O_{cal}$ and $\delta^{13}C_{cal}$ ($R^2$=0.69) in the Martin Lake record therefore suggests that trends in these isotopes reflect changes in the seasonality of precipitation ($\delta^{18}O_{precip}$) and relative degree of thermal stratification ($\delta^{13}C$; Figure 7C).

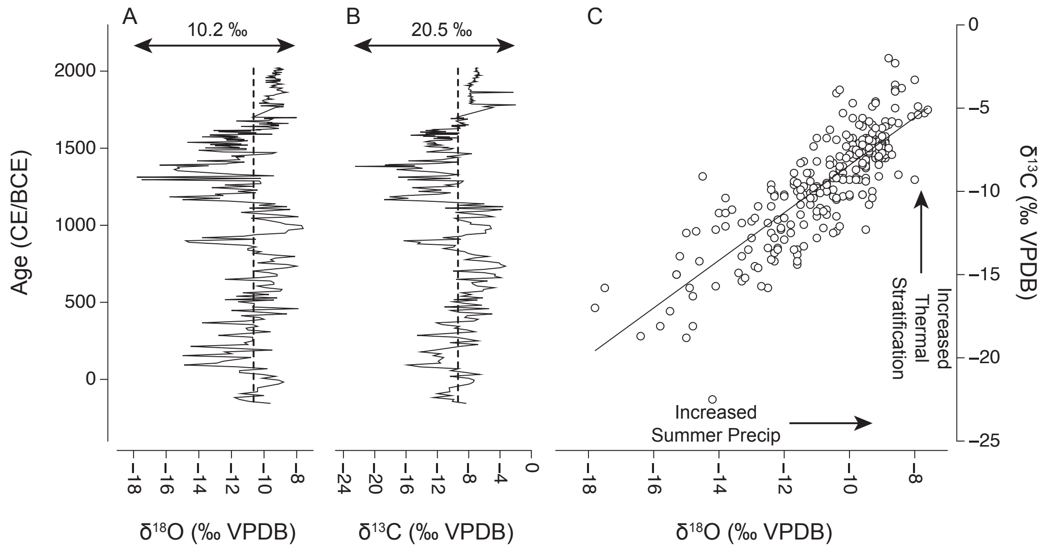


Figure 7: Graph showing Martin Lake Isotope results. A&B) Plots showing oxygen and carbon isotope results, respectively. The dotted lines represent the mean value from 2013 CE to 300 BCE, and the arrows above show the range of values over the same period. C) Scatterplot between $\delta^{13}C_{cal}$ and $\delta^{18}O_{cal}$. A regression between the two variables shows statistically significant covariance ($R^2$ = 0.6867, n = 273).

### *5.5 Martin Lake Lithics*

The lithic fraction of the sediment record at Martin Lake is representative of changes in the delivery of clastic material to the lake basin, which is affected by local precipitation intensity. Because Martin Lake is situated in a climatic region that experiences near to below freezing temperatures during the winter months, ice cover likely restricts the delivery of fluvially derived sediment during this time. Therefore, we argue that lithic material is delivered to the lake during warm, ice-free conditions typical of April through November. There are also no permanent fluvial systems in the Martin Lake watershed; the channels that do exist are only activated during the summer months when there is sufficient runoff from summer storms, which can be seen in historical satellite imagery of the area. The total amount of summer rainfall, which is driven by large storm events, is therefore hypothesized to drive watershed erosion and control the delivery of lithic material to the core site (Conroy et al., 2008). Lastly, prior to 19th century settlement, the catchment was forested (Williams, 1974). This vegetation would have helped stabilize the landscape, promoting stream bank erosion as a clastic source over whole landscape erosion, which helps explain the drastic increase in %lithics post settlement and land clearance.

Within this framework, we interpret increases in %lithics to represent increased summer precipitation intensity and amount, which drove increased stream erosion, lithic transport and deposition. At Martin Lake, %lithics varies from 0.3 % to 84.9 %, representing a wide range of precipitation intensities. Splitting up the %lithics time series into two segments, pre-1800 and post-1800, reveals that land clearance has had a large influence on the amount of clastic material reaching the core site. The pre-1800 average %lithics is 21.8 % while the post-1800 average is 55.4 %. %lithics provides a valuable watershed-level proxy for summer precipitation. While $\delta^{18}O_{precip}$ responds to synoptic scale ocean-atmosphere forcing, %lithics responds to local precipitation intensity.

*5.6 Late Holocene Seasonality of Precipitation*

Using a combination of proxies that captures changes in moisture source related to large-scale ocean-atmosphere processes, watershed-scale erosion, and in-lake water column stratification ($\delta^{18}O_{cal}$, %lithics, and $\delta^{13}C_{cal}$, respectively), provides constraints on climate variability on a variety of spatial scales. Due to the close relationship between precipitation and sedimentary calcite $\delta^{18}O$, and the strong evidence that changes in moisture source related to the seasonality of precipitation drive annual average $\delta^{18}O_{precip}$; we interpret down-core variability in $\delta^{18}O_{cal}$ as representative of changes in the relative proportions of summer versus winter precipitation. High $\delta^{18}O_{cal}$ is equated with periods of elevated summer precipitation, conversely low $\delta^{18}O_{cal}$ records periods of less summer precipitation. Increases in $\delta^{18}O_{cal}$ have alternatively been interpreted as increased evaporation due to less precipitation; however, in the Midwest increased summer precipitation would also be accompanied with increased summer storm events, which would drive stream erosion, causing an increase in %lithics. The %lithics record therefore provides a means of testing these opposing mechanisms for $\delta^{18}O_{cal}$ increases. A longer period of conditions favorable for primary production, such as occur during years with mild or short winters, would increase water column stratification and increase the proportional amount of $^{13}C$ in the epilimnion DIC, and elevate $\delta^{13}C_{cal}$. This is consistent with the largely in-phase relationship between $\delta^{18}O_{cal}$, $\delta^{13}C_{cal}$ and %lithics during the last 2,300 years. Given the isotopic similarities between Martin Lake water and modern precipitation, down core changes in $\delta^{18}O_{cal}$ at Martin Lake are interpreted to reflect regional shifts of the isotopic composition of annual average precipitation along the LMWL (high $\delta^{18}O_{cal}$ and high $\delta D$ = summer, low $\delta^{18}O_{cal}$ and low $\delta D$ = winter) in response to the seasonal distribution of precipitation (high $\delta^{18}O_{precip}$ = summer and low $\delta^{18}O_{precip}$ = winter; Figure 5).

With the above interpretive framework in mind, the Martin Lake record shows considerable decadal-scale variability throughout the late Holocene in $\delta^{18}O_{cal}$,

$\delta^{13}C_{cal}$, and %lithics (Figure 8). Superimposed on this variability are two punctuated century-scale mean state changes. The earliest part of the Martin Lake record shows relatively high values for all three proxies, which peak at 0 CE, followed by a rapid decline to lower values by 100 CE. The three proxies all indicate that this drop represents a sudden shift from summer-dominated conditions to winter-dominated conditions. The oxygen isotope values indicate a decrease in the proportional amount of summer (southern sourced) precipitation, %lithics indicate a drop in the amount of summer rainfall, and the carbon isotope values indicate reduced thermal stratification. Throughout the record, when all three proxies are increasing (decreasing), we interpret the changes to represent a change to an overall warm and wet (cold and dry) climate and term these 'summer-dominated' and 'winter-dominated' conditions respectively.

After 100 CE, values of %lithics, $\delta^{18}O$ and $\delta^{13}C$ steadily increase until 800 CE, representing a transition to a long period of summer-dominated climate. The rapid decrease and subsequent increase in all three proxies between 800 and 1000 CE represents a short period of enhanced winter conditions, though throughout this period, the proxy values are only below their mean values for approximately 50 years. Between 1000 and 1130 CE, all three proxies are consistently high, representing a century long return to pre-800 CE, summer-dominated, conditions. After 1130 CE, %lithics rapidly drops, while both isotope proxies remain high until 1200 CE, when they also suddenly decrease. From 1130 CE on, the %lithics pattern is independent of the isotope proxies, perhaps representing a decrease in intense rainfall events, which would erode streams more than slow, steady rainfall. After a brief recovery then decline between 1130 and 1200 CE, %lithics remains low until 1800 CE, when it suddenly increases dramatically due to land clearance. This period represents a 600-year period of decreased streambed erosion in the Martin Lake catchment.

After 1200 CE, both isotope proxies enter a period of high frequency variability, but remain mostly below their means until 1720 CE. The time period between 1350 and 1450 CE contains the absolute minima of both isotope proxies, indicating the least stratified in-lake conditions and the most winter-dominated (northern sourced) precipitation of the last 2,300 years. The isotope trends, coupled with the low %lithics during this period (1350 to 1700 CE), indicate an extreme period of cold and dry climate for the Midwest. Following 1720 CE for the isotope proxies, and1800 CE for %lithics, values reached their modern (high) values and have remained consistent to present.

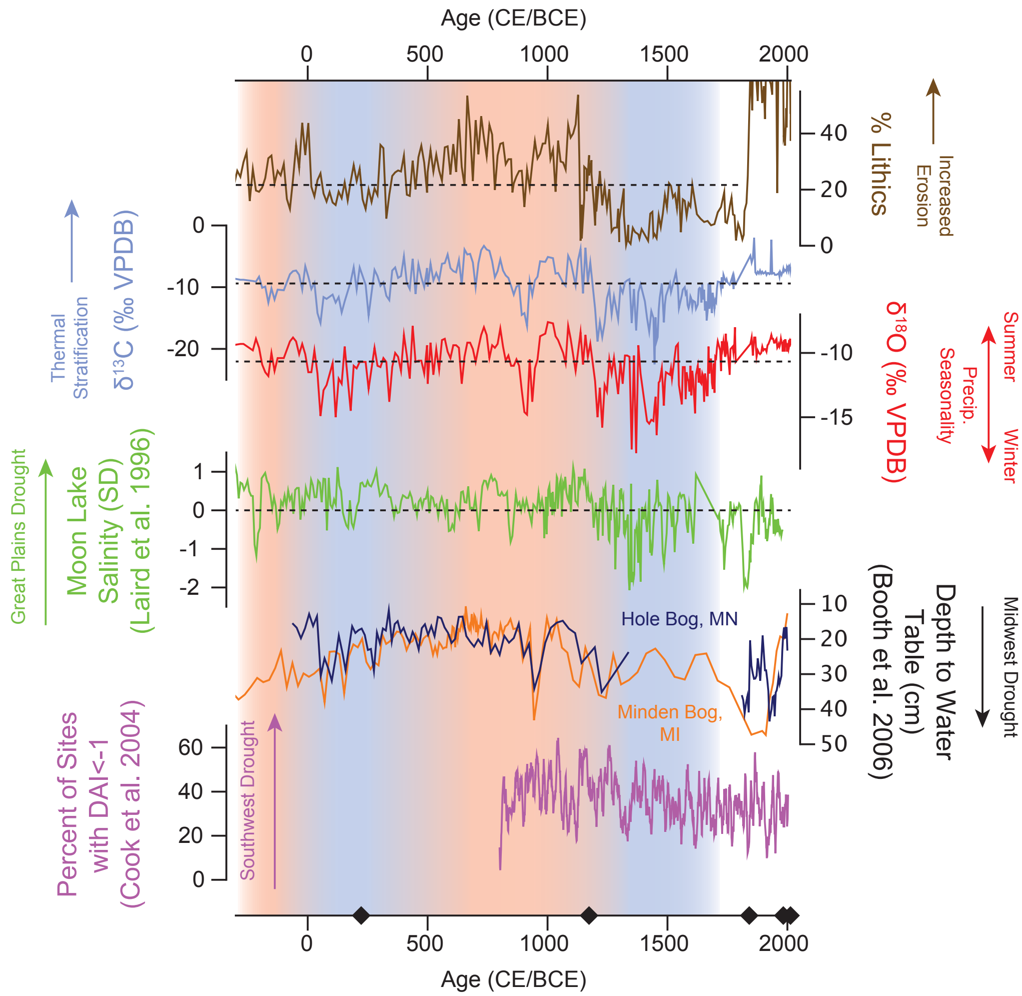


Figure 8: Graph showing the Martin Lake proxy record compared to other regional paleoclimate records. Dotted lines represent mean values for the time periods over which they are drawn. Martin Lake %lithics is in brown, $\delta^{13}C_{cal}$ in light blue, and $\delta^{18}O_{cal}$ in red. Diatom inferred standard deviation from mean salinity at Moon Lake, ND is shown in green, inferred depth to water table from Minden Bog, MI in orange, inferred depth to water table from Hole Bog, MN in dark blue, and the percentage of tree ring records from the PDSI grid showing drought (DAI < -1) is shown in purple (Booth et al., 2006a; Cook et al., 2007; Laird et al., 1996). The gap in the Minden Bog record indicates a hiatus.

The Martin Lake record suggests a prolonged period of wet, summer-dominated conditions between 450 and 1180 CE, indicating an extended period of MCA or MCA-like conditions in the Midwest. It could also be argued that the period between 1000 and 1180 CE represents the MCA in the Midwest, which would fit more with the previously defined chronology of late-Holocene climate (Mann et al., 2009a). We interpret the period from 1350 to 1700 CE to indicate a multi-century drought, followed by a slow increase in precipitation to modern values. This period of time fits the established chronology for the LIA (Mann et al., 2009b), though the Martin Lake proxy time series suggest an earlier termination of the LIA in the Midwest.

At a regional scale, the Martin Lake record of late Holocene climate shares notable similarities with other continental hydroclimate records. Martin Lake is in phase with two bog records, which represent the depth of the water table, from Minden Bog, Michigan, and Hole Bog, Minnesota (Booth et al., 2006b; Booth and Jackson, 2003). When Minden Bog and Hole Bog had low water tables, i.e., drought, there was less precipitation at Martin Lake and conditions were likely cooler (Figure 8). This is particularly true during the interval from 0 to 1200 CE, during which time values started low, increased until 800 CE, rapidly decreased and recovered between 800 and 1000 CE, then decreased again. During the period from 1350 to 1800 CE, which encompasses the LIA, Hole Bog has a hiatus, representing an extremely low water table, and Martin Lake has the lowest values for all three proxies, indicating widespread drought and cooler conditions (Figure 8). Further west, Martin Lake shows out of phase relationships with High Plains hydroclimate records and tree-ring based drought reconstructions from the southwest United States (Figure 1A). In North Dakota, a diatom record of salinity changes from Moon Lake shows primarily drought conditions from 200 BCE to 1200 CE (Laird et al., 1997; 1996). These drought conditions are especially pronounced during the period from 1000 to 1200 CE, when the Martin Lake record indicates very wet, summer-dominated conditions. The Moon Lake salinity record indicates a wet period from 1200 to 1600 CE, when Martin Lake is in a drought (Laird et al., 1997; 1996). Similar results are seen in tree ring records in the southwest United States, where periods of drought at Martin Lake are anomalously wet in the southwest (Cook et al., 2007). These relationships suggest a common, large-scale forcing mechanism that influenced precipitation patterns across the continental United States, but with opposite manifestations in the western and eastern United States.

*5.7 Drivers of Midwest hydroclimate*

The Midwest is an area that is geographically sensitive to changes in Pacific Ocean-atmosphere dynamics (Leathers et al., 1991). Heat distribution patterns in the Pacific Ocean, and its interactions with atmospheric dynamics are driven by heating and cooling in the tropical Pacific (Clement et al., 1996). Simply put, overall cooling in the tropical Pacific causes El Niño-like (negative phase ENSO) conditions, while warming causes La Niña-like conditions (positive phase ENSO). These changes in ENSO are linked to North Pacific SSTs and ocean-atmosphere interactions of the PNA, which bridges tropical and extratropical Pacific heat distribution (Cai and Whetton, 2001). Northern Pacific conditions modulate the mean position and orientation of the PFJS, which is the primary controller of climate across much of North America (Andresen et al., 2012).

The Martin Lake record of precipitation seasonality showed strong similarities to North Pacific SSTs and Northern Hemisphere mean temperature over the last 1,300 years (Figure 9). The record of North Pacific SSTs is driven by the Pacific Decadal Oscillation (PDO) and showed many similarities to the Martin Lake proxy record (Mann et al., 2009a). Today, when North Pacific SSTs are warm (La Niña), the PNA tends towards its negative phase and the Midwest receives increased precipitation, while the western United States is dry. The opposite occurs when North Pacific SSTs are cool. The proxy records supports this interpretation of the relationship between Pacific SSTs and continental United States hydroclimate. The period between 700 and 1100 CE reveals mostly high North Pacific SSTs along with elevated values from all three proxies at Martin Lake. All Martin Lake proxies also show the rapid decrease and recovery between 800 and 1000 CE. Northern Pacific SSTs also decrease around 1450 CE, when the Martin Lake proxy record indicates the driest conditions over the last 2,300 years, and both records slowly recover between 1450 CE and the present (Figure 8). It should be noted that these changes in North Pacific SSTs are out-of-phase with precipitation in the High Plains and southwestern United States. The striking similarities between the Martin Lake proxy record and reconstructed North Pacific SSTs reveal a strong correlation between Pacific Ocean heat distribution/ocean-atmosphere dynamics and continental North American climate.

General trends in Northern Hemisphere temperature and the Martin Lake proxy record also match fairly well, which is consistent with our interpretation that Pacific Ocean processes are driving climate in the Midwest. ENSO has been shown to be a significant driver of Northern Hemisphere climate; however, a proxy record of Northern Hemisphere temperature as a whole includes influences that are unlikely to affect the Midwest. The general trend of Northern Hemisphere temperature shows a peak at 1000 CE, contemporary with a peak in the three proxies at Martin Lake (Esper et al., 2002). The temperature reconstruction also reveals a sharp decrease around 1500 CE, which is chronologically close to the decrease in precipitation at Martin Lake that we interpret as the LIA. Overall, it appears that late Holocene climate changes at Martin Lake, and across much of the continental United States, were similarly paced with mean state changes in the Pacific ocean-atmosphere system and Northern Hemisphere temperatures. The phasing and sign of these changes is consistent with patterns of PNA variability that are not independent from Pacific ocean-atmosphere processes, suggesting that they are linked.

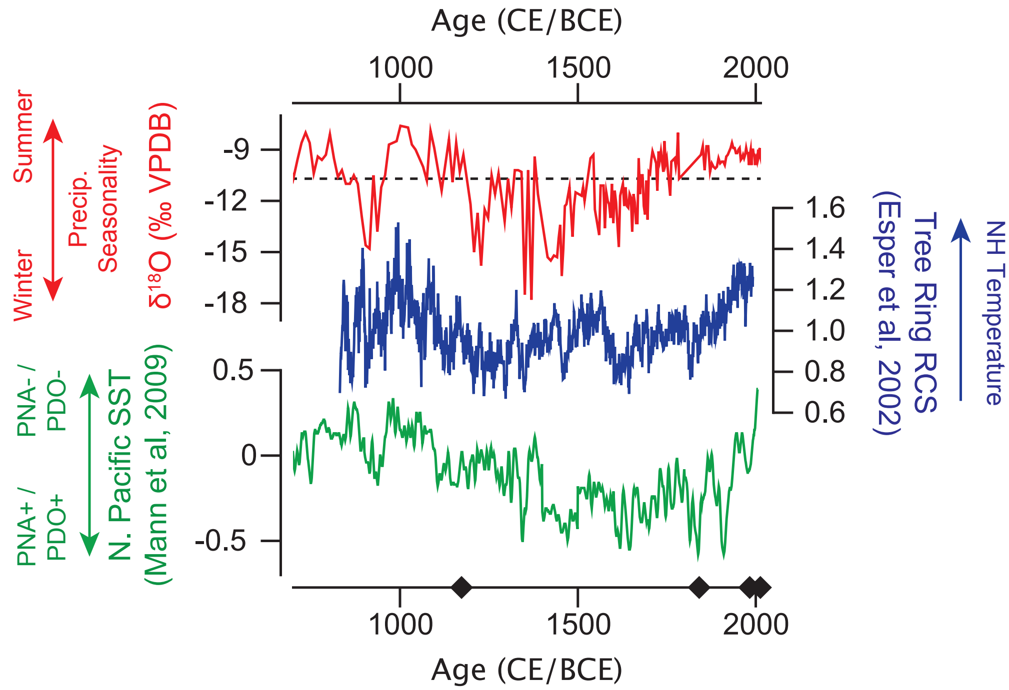


Figure 9: Graph showing global climate drivers and the Martin Lake $\delta^{18}O_{cal}$ record. The Martin Lake record is in red, a Northern Hemisphere temperature reconstruction in blue, and reconstructed North Pacific SSTs in green (Esper et al., 2002; Mann et al., 2009a).

## 6.0 Summary and Conclusions

The multi-proxy record from Martin Lake, IN provides a decadally resolved view of Late Holocene precipitation in the Midwest at a wide range of spatial scales. Changes in $\delta^{18}O_{cal}$, $\delta^{13}C_{cal}$, and %lithics reveal that the Midwest has experienced a wide range of precipitation regimes over the last 2,300 years: (1) a prolonged period of wet summer conditions leading up to, and including the MCA (450 to 1200 CE) with a pronounced period of drier-than-normal conditions between 850 and 950 CE; (2) a pronounced 100-year drought at the onset of the LIA (1450 CE) followed by a gradual increase in precipitation until 1700 CE; and (4) a very steady state of wet summer conditions from 1800 CE to present. The Martin Lake proxy record shows remarkable similarities to other Midwestern paleoclimate records that record precipitation amounts and seasonality. It is also out-of-phase with records from the High Plains and southwestern United States, suggesting a precipitation dipole between the eastern and western United States. The precipitation variability seen at Martin Lake responds to changes in Pacific Ocean heat distribution, suggesting a strong link between Pacific Ocean-atmosphere dynamics and continental North American climate.

The results presented here suggest that the Midwest is susceptible to megadroughts, and has experienced long-term, century-scale drought within the last 2,300 years; however, as the west coast continues to experience intense drought, ocean-atmospheric dynamics suggest the Midwest will continue to experience long, wet summers. This work suggests the use of Pacific Ocean heat distribution as a means of predicting modern droughts and highlights the need for more high-resolution paleoclimate records in the midcontinental United States that capture the seasonality of precipitation.

**Appendix A: Core Database**

| Core | Core type | Lat (dd N) | Long (dd W) | Elev. (m ASL) | Date | H2O depth (m) | # Drives |
|---|---|---|---|---|---|---|---|
| A-13 | Livingston | 41.56424 | 85.38482 | 272 | 5/27/13 | 16.5 | 5 |
| B-13 | Surface | 41.56424 | 85.38482 | 272 | 5/27/13 | 16.5 | 1 |
| C-13 | Surface | 41.56424 | 85.38482 | 272 | 5/27/13 | 16.5 | 1 |
| D-13 | Livingston | 41.56429 | 85.38434 | 274 | 5/28/13 | 16.3 | 12 |
| E-13 | Livingston | 41.56422 | 85.38443 | | 9/13/13 | 16.4 | 11 |
| F-13 | Livingston | 41.56418 | 85.38449 | | 9/14/13 | 16.4 | 9 |
| G-13 | Surface | 41.56418 | 85.38449 | | 9/14/13 | 17.4 | 1 |
| H-13 | Freeze | 41.5643 | 85.38418 | | 10/19/13 | | 1 |
| I-13 | Freeze | 41.56441 | 85.3843 | | 10/19/13 | | 1 |
| J-13 | Freeze | 41.56451 | 85.38467 | | 10/19/13 | | 1 |

## Appendix B: Composite BD/LOI

| Core | Drive | Avg Depth | Comp. Depth | Age BP | Age CE | Dry BD (g/cc) | %TOM | %TIC | %Res | TOM Flux (g/cm2yr) | TIC Flux (g/cm2yr) | Res. Flux (g/cm2yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 1 | 0.5 | 0.5 | -63.188 | 2013.188 | 0.296 | 17.391 | 12.681 | 69.928 | -0.012 | -0.009 | -0.050 |
| D-13 | 1 | 2.5 | 2.5 | -63.670 | 2013.670 | 0.342 | 15.634 | 15.634 | 68.732 | -0.001 | -0.001 | -0.007 |
| D-13 | 1 | 4.5 | 4.5 | -63.726 | 2013.726 | 0.295 | 15.493 | 16.549 | 67.958 | 0.008 | 0.009 | 0.037 |
| D-13 | 1 | 6.5 | 6.5 | -63.359 | 2013.359 | 0.384 | 14.448 | 15.864 | 69.688 | 0.022 | 0.024 | 0.105 |
| D-13 | 1 | 8.5 | 8.5 | -62.576 | 2012.576 | 0.352 | 15.607 | 12.428 | 71.965 | 0.033 | 0.026 | 0.152 |
| D-13 | 1 | 10.5 | 10.5 | -61.380 | 2011.380 | 0.398 | 14.550 | 10.847 | 74.603 | 0.046 | 0.035 | 0.238 |
| D-13 | 1 | 12.5 | 12.5 | -59.775 | 2009.775 | 0.429 | 14.634 | 9.756 | 75.610 | 0.063 | 0.042 | 0.326 |
| D-13 | 1 | 14.5 | 14.5 | -57.767 | 2007.767 | 0.443 | 13.692 | 10.758 | 75.550 | 0.073 | 0.057 | 0.403 |
| D-13 | 1 | 16.5 | 16.5 | -55.360 | 2005.360 | 0.401 | 13.660 | 11.598 | 74.742 | 0.077 | 0.065 | 0.420 |
| D-13 | 1 | 18.5 | 18.5 | -52.558 | 2002.558 | 0.536 | 13.333 | 8.000 | 78.667 | 0.114 | 0.068 | 0.673 |
| D-13 | 1 | 20.5 | 20.5 | -49.366 | 1999.366 | 0.401 | 14.322 | 9.463 | 76.215 | 0.103 | 0.068 | 0.547 |
| D-13 | 1 | 22.5 | 22.5 | -45.788 | 1995.788 | 0.372 | 14.286 | 11.813 | 73.901 | 0.105 | 0.087 | 0.544 |
| D-13 | 1 | 24.5 | 24.5 | -41.828 | 1991.828 | 0.426 | 14.078 | 13.350 | 72.573 | 0.130 | 0.123 | 0.670 |
| D-13 | 1 | 26.5 | 26.5 | -37.492 | 1987.492 | 0.432 | 14.742 | 16.216 | 69.042 | 0.156 | 0.171 | 0.730 |
| D-13 | 1 | 30.5 | 30.5 | -27.704 | 1977.704 | 0.471 | 12.135 | 11.236 | 76.629 | 0.156 | 0.144 | 0.982 |
| D-13 | 1 | 32.5 | 32.5 | -22.262 | 1972.262 | 0.483 | 12.500 | 7.765 | 79.735 | 0.175 | 0.109 | 1.117 |
| D-13 | 1 | 34.5 | 34.5 | -16.459 | 1966.459 | 0.523 | 14.090 | 7.828 | 78.082 | 0.227 | 0.126 | 1.257 |
| D-13 | 1 | 36.5 | 36.5 | -10.301 | 1960.301 | 0.408 | 14.177 | 11.646 | 74.177 | 0.188 | 0.155 | 0.985 |
| D-13 | 1 | 38.5 | 38.5 | -3.792 | 1953.792 | 0.488 | 13.319 | 9.302 | 77.378 | 0.223 | 0.156 | 1.295 |
| D-13 | 1 | 40.5 | 40.5 | 3.066 | 1946.934 | 0.456 | 14.455 | 9.242 | 76.303 | 0.237 | 0.152 | 1.253 |
| D-13 | 1 | 42.5 | 42.5 | 10.266 | 1939.734 | 0.495 | 12.346 | 13.992 | 73.663 | 0.230 | 0.261 | 1.375 |
| D-13 | 1 | 44.5 | 44.5 | 17.806 | 1932.194 | 0.521 | 12.369 | 11.950 | 75.681 | 0.254 | 0.245 | 1.552 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 1 | 46.5 | 46.5 | 25.680 | 1924.320 | 0.578 | 12.456 | 10.854 | 76.690 | 0.295 | 0.257 | 1.819 |
| D-13 | 1 | 48.5 | 48.5 | 33.886 | 1916.114 | 0.516 | 12.128 | 12.553 | 75.319 | 0.267 | 0.276 | 1.658 |
| D-13 | 1 | 50.5 | 50.5 | 42.419 | 1907.581 | 0.527 | 12.779 | 10.142 | 77.079 | 0.298 | 0.237 | 1.799 |
| D-13 | 1 | 52.5 | 52.5 | 51.274 | 1898.726 | 0.414 | 14.806 | 15.049 | 70.146 | 0.281 | 0.286 | 1.332 |
| D-13 | 1 | 54.5 | 54.5 | 60.449 | 1889.551 | 0.452 | 14.932 | 11.538 | 73.529 | 0.320 | 0.247 | 1.577 |
| D-13 | 1 | 56.5 | 56.5 | 69.939 | 1880.061 | 0.436 | 15.222 | 10.070 | 74.707 | 0.325 | 0.215 | 1.596 |
| D-13 | 1 | 58.5 | 58.5 | 79.740 | 1870.260 | 0.352 | 16.035 | 11.662 | 72.303 | 0.285 | 0.207 | 1.286 |
| D-13 | 1 | 60.5 | 60.5 | 89.848 | 1860.152 | 0.382 | 17.232 | 4.520 | 78.249 | 0.343 | 0.090 | 1.556 |
| D-13 | 1 | 62.5 | 62.5 | 100.260 | 1849.740 | 0.320 | 17.544 | 10.175 | 72.281 | 0.301 | 0.174 | 1.239 |
| D-13 | 1 | 64.5 | 64.5 | 110.971 | 1839.029 | 0.231 | 23.810 | 6.494 | 69.697 | 0.303 | 0.083 | 0.886 |
| D-13 | 1 | 66.5 | 66.5 | 121.978 | 1828.022 | 0.177 | 27.879 | 4.848 | 67.273 | 0.277 | 0.048 | 0.669 |
| D-13 | 2 | 18.5 | 67.7 | 128.723 | 1821.277 | 0.149 | 29.104 | 5.970 | 64.925 | 0.249 | 0.051 | 0.555 |
| D-13 | 2 | 20.5 | 69.7 | 140.195 | 1809.805 | 0.158 | 29.139 | 8.609 | 62.252 | 0.271 | 0.080 | 0.578 |
| D-13 | 2 | 22.5 | 71.7 | 151.953 | 1798.047 | 0.175 | 30.909 | 3.636 | 65.455 | 0.326 | 0.038 | 0.690 |
| D-13 | 2 | 24.5 | 73.7 | 163.993 | 1786.007 | 0.192 | 31.655 | 7.194 | 61.151 | 0.374 | 0.085 | 0.723 |
| D-13 | 2 | 26.5 | 75.7 | 176.312 | 1773.688 | 0.194 | 29.787 | 6.915 | 63.298 | 0.364 | 0.084 | 0.773 |
| D-13 | 2 | 28.5 | 77.7 | 188.906 | 1761.094 | 0.187 | 30.579 | 6.612 | 62.810 | 0.368 | 0.080 | 0.756 |
| D-13 | 2 | 30.5 | 79.7 | 201.771 | 1748.229 | 0.192 | 28.144 | 8.383 | 63.473 | 0.355 | 0.106 | 0.800 |
| D-13 | 2 | 32.5 | 81.7 | 214.903 | 1735.097 | 0.179 | 31.737 | 7.186 | 61.078 | 0.381 | 0.086 | 0.732 |
| D-13 | 2 | 34.5 | 83.7 | 228.300 | 1721.700 | 0.201 | 28.342 | 8.021 | 63.636 | 0.389 | 0.110 | 0.873 |
| D-13 | 2 | 36.5 | 85.7 | 241.957 | 1708.043 | 0.200 | 30.811 | 6.486 | 62.703 | 0.429 | 0.090 | 0.872 |
| D-13 | 2 | 38.5 | 87.7 | 255.871 | 1694.129 | 0.184 | 29.167 | 4.762 | 66.071 | 0.380 | 0.062 | 0.861 |
| D-13 | 2 | 40.5 | 89.7 | 270.038 | 1679.962 | 0.175 | 30.120 | 6.024 | 63.855 | 0.380 | 0.076 | 0.806 |
| D-13 | 2 | 42.5 | 91.7 | 284.455 | 1665.545 | 0.174 | 30.714 | 7.143 | 62.143 | 0.392 | 0.091 | 0.793 |
| D-13 | 2 | 44.5 | 93.7 | 299.119 | 1650.881 | 0.169 | 29.630 | 5.556 | 64.815 | 0.373 | 0.070 | 0.816 |
| D-13 | 2 | 46.5 | 95.7 | 314.026 | 1635.974 | 0.165 | 27.742 | 4.516 | 67.742 | 0.347 | 0.056 | 0.846 |
| D-13 | 2 | 48.5 | 97.7 | 329.172 | 1620.828 | 0.184 | 29.375 | 6.250 | 64.375 | 0.416 | 0.088 | 0.911 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 2 | 50.5 | 99.7 | 344.555 | 1605.445 | 0.188 | 30.645 | 5.376 | 63.978 | 0.450 | 0.079 | 0.939 |
| D-13 | 2 | 52.5 | 101.7 | 360.171 | 1589.829 | 0.165 | 29.193 | 4.969 | 65.839 | 0.382 | 0.065 | 0.861 |
| D-13 | 2 | 54.5 | 103.7 | 376.016 | 1573.984 | 0.193 | 29.630 | 11.111 | 59.259 | 0.460 | 0.172 | 0.919 |
| D-13 | 2 | 56.5 | 105.7 | 392.088 | 1557.912 | 0.161 | 29.787 | 5.674 | 64.539 | 0.391 | 0.074 | 0.847 |
| D-13 | 2 | 58.5 | 107.7 | 408.383 | 1541.617 | 0.205 | 27.044 | 10.692 | 62.264 | 0.458 | 0.181 | 1.054 |
| D-13 | 2 | 60.5 | 109.7 | 424.898 | 1525.102 | 0.211 | 25.946 | 13.514 | 60.541 | 0.458 | 0.239 | 1.069 |
| D-13 | 2 | 62.5 | 111.7 | 441.629 | 1508.371 | 0.219 | 30.303 | 9.596 | 60.101 | 0.562 | 0.178 | 1.115 |
| D-13 | 2 | 64.5 | 113.7 | 458.574 | 1491.426 | 0.181 | 35.838 | 5.780 | 58.382 | 0.556 | 0.090 | 0.906 |
| D-13 | 2 | 66.5 | 115.7 | 475.729 | 1474.271 | 0.215 | 30.864 | 11.111 | 58.025 | 0.576 | 0.207 | 1.083 |
| D-13 | 2 | 68.5 | 117.7 | 493.091 | 1456.909 | 0.178 | 32.143 | 8.333 | 59.524 | 0.503 | 0.130 | 0.931 |
| D-13 | 2 | 70.5 | 119.7 | 510.657 | 1439.343 | 0.172 | 34.356 | 5.521 | 60.123 | 0.525 | 0.084 | 0.919 |
| D-13 | 2 | 72.5 | 121.7 | 528.424 | 1421.576 | 0.188 | 30.108 | 11.290 | 58.602 | 0.508 | 0.191 | 0.990 |
| D-13 | 2 | 74.5 | 123.7 | 546.390 | 1403.610 | 0.183 | 34.810 | 6.962 | 58.228 | 0.578 | 0.116 | 0.968 |
| D-13 | 2 | 76.5 | 125.7 | 564.550 | 1385.450 | 0.184 | 32.558 | 8.721 | 58.721 | 0.550 | 0.147 | 0.991 |
| D-13 | 2 | 78.5 | 127.7 | 582.902 | 1367.098 | 0.171 | 32.298 | 8.696 | 59.006 | 0.512 | 0.138 | 0.935 |
| D-13 | 2 | 80.5 | 129.7 | 601.443 | 1348.557 | 0.188 | 27.717 | 11.957 | 60.326 | 0.488 | 0.210 | 1.062 |
| D-13 | 2 | 82.5 | 131.7 | 620.170 | 1329.830 | 0.163 | 27.211 | 12.925 | 59.864 | 0.419 | 0.199 | 0.923 |
| D-13 | 2 | 84.5 | 133.7 | 639.080 | 1310.920 | 0.193 | 25.556 | 12.222 | 62.222 | 0.469 | 0.225 | 1.143 |
| D-13 | 3 | 14.5 | 134.5 | 646.694 | 1303.306 | 0.200 | 27.660 | 8.511 | 63.830 | 0.530 | 0.163 | 1.223 |
| D-13 | 3 | 16.5 | 136.5 | 665.856 | 1284.144 | 0.193 | 32.086 | 5.882 | 62.032 | 0.599 | 0.110 | 1.158 |
| D-13 | 3 | 18.5 | 138.5 | 685.194 | 1264.806 | 0.211 | 32.836 | 6.965 | 60.199 | 0.676 | 0.143 | 1.239 |
| D-13 | 3 | 20.5 | 140.5 | 704.705 | 1245.295 | 0.170 | 34.641 | 5.229 | 60.131 | 0.580 | 0.087 | 1.006 |
| D-13 | 3 | 22.5 | 142.5 | 724.387 | 1225.613 | 0.175 | 34.783 | 4.348 | 60.870 | 0.604 | 0.076 | 1.057 |
| D-13 | 3 | 24.5 | 144.5 | 744.236 | 1205.764 | 0.209 | 29.032 | 4.301 | 66.667 | 0.607 | 0.090 | 1.394 |
| D-13 | 3 | 26.5 | 146.5 | 764.251 | 1185.749 | 0.224 | 26.020 | 7.143 | 66.837 | 0.588 | 0.161 | 1.510 |
| D-13 | 3 | 28.5 | 148.5 | 784.428 | 1165.572 | 0.210 | 28.485 | 4.242 | 67.273 | 0.608 | 0.091 | 1.437 |
| D-13 | 3 | 30.5 | 150.5 | 804.765 | 1145.235 | 0.260 | 25.806 | 5.242 | 68.952 | 0.688 | 0.140 | 1.837 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 3 | 32.5 | 152.5 | 825.258 | 1124.742 | 0.216 | 26.020 | 8.673 | 65.306 | 0.580 | 0.193 | 1.456 |
| D-13 | 3 | 34.5 | 154.5 | 845.906 | 1104.094 | 0.254 | 24.473 | 6.751 | 68.776 | 0.646 | 0.178 | 1.817 |
| D-13 | 3 | 36.5 | 156.5 | 866.706 | 1083.294 | 0.211 | 32.020 | 4.926 | 63.054 | 0.708 | 0.109 | 1.394 |
| D-13 | 3 | 38.5 | 158.5 | 887.655 | 1062.345 | 0.208 | 29.208 | 6.436 | 64.356 | 0.641 | 0.141 | 1.412 |
| D-13 | 3 | 40.5 | 160.5 | 908.751 | 1041.249 | 0.217 | 29.703 | 6.436 | 63.861 | 0.685 | 0.148 | 1.472 |
| D-13 | 3 | 42.5 | 162.5 | 929.990 | 1020.010 | 0.215 | 26.596 | 5.319 | 68.085 | 0.611 | 0.122 | 1.565 |
| D-13 | 3 | 44.5 | 164.5 | 951.371 | 998.629 | 0.219 | 27.830 | 6.132 | 66.038 | 0.656 | 0.145 | 1.556 |
| D-13 | 3 | 46.5 | 166.5 | 972.892 | 977.108 | 0.202 | 29.609 | 7.821 | 62.570 | 0.648 | 0.171 | 1.369 |
| D-13 | 3 | 48.5 | 168.5 | 994.549 | 955.451 | 0.216 | 29.412 | 5.392 | 65.196 | 0.692 | 0.127 | 1.534 |
| D-13 | 3 | 50.5 | 170.5 | 1016.340 | 933.660 | 0.193 | 28.947 | 4.737 | 66.316 | 0.612 | 0.100 | 1.403 |
| D-13 | 3 | 52.5 | 172.5 | 1038.263 | 911.737 | 0.198 | 30.220 | 6.593 | 63.187 | 0.660 | 0.144 | 1.379 |
| D-13 | 3 | 54.5 | 174.5 | 1060.316 | 889.684 | 0.100 | 28.421 | 5.789 | 65.789 | 0.315 | 0.064 | 0.730 |
| D-13 | 3 | 56.5 | 176.5 | 1082.495 | 867.505 | 0.224 | 30.435 | 6.763 | 62.802 | 0.760 | 0.169 | 1.569 |
| D-13 | 3 | 58.5 | 178.5 | 1104.800 | 845.200 | 0.227 | 28.302 | 5.189 | 66.509 | 0.720 | 0.132 | 1.693 |
| D-13 | 3 | 60.5 | 180.5 | 1127.227 | 822.773 | 0.267 | 25.296 | 7.115 | 67.589 | 0.761 | 0.214 | 2.034 |
| D-13 | 3 | 62.5 | 182.5 | 1149.774 | 800.226 | 0.212 | 27.638 | 6.030 | 66.332 | 0.664 | 0.145 | 1.594 |
| D-13 | 3 | 64.5 | 184.5 | 1172.440 | 777.560 | 0.248 | 25.877 | 5.702 | 68.421 | 0.731 | 0.161 | 1.933 |
| D-13 | 3 | 66.5 | 186.5 | 1195.221 | 754.779 | 0.227 | 25.792 | 8.145 | 66.063 | 0.670 | 0.212 | 1.717 |
| D-13 | 3 | 68.5 | 188.5 | 1218.116 | 731.884 | 0.202 | 27.749 | 5.236 | 67.016 | 0.645 | 0.122 | 1.557 |
| D-13 | 3 | 70.5 | 190.5 | 1241.122 | 708.878 | 0.224 | 25.229 | 6.881 | 67.890 | 0.653 | 0.178 | 1.758 |
| D-13 | 3 | 72.5 | 192.5 | 1264.238 | 685.762 | 0.234 | 25.446 | 6.696 | 67.857 | 0.691 | 0.182 | 1.844 |
| D-13 | 3 | 74.5 | 194.5 | 1287.461 | 662.539 | 0.204 | 28.866 | 4.639 | 66.495 | 0.687 | 0.110 | 1.582 |
| D-13 | 3 | 76.5 | 196.5 | 1310.789 | 639.211 | 0.245 | 22.822 | 7.884 | 69.295 | 0.655 | 0.226 | 1.989 |
| D-13 | 3 | 78.5 | 198.5 | 1334.221 | 615.779 | 0.239 | 23.707 | 6.466 | 69.828 | 0.667 | 0.182 | 1.964 |
| D-13 | 3 | 80.5 | 200.5 | 1357.753 | 592.247 | 0.228 | 24.434 | 4.977 | 70.588 | 0.658 | 0.134 | 1.902 |
| D-13 | 3 | 82.5 | 202.5 | 1381.385 | 568.615 | 0.219 | 27.723 | 6.436 | 65.842 | 0.720 | 0.167 | 1.711 |
| D-13 | 3 | 84.5 | 204.5 | 1405.114 | 544.886 | 0.232 | 25.893 | 6.250 | 67.857 | 0.716 | 0.173 | 1.875 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 3 | 86.5 | 206.5 | 1428.938 | 521.062 | 0.231 | 26.316 | 7.456 | 66.228 | 0.727 | 0.206 | 1.830 |
| D-13 | 3 | 88.5 | 208.5 | 1452.855 | 497.145 | 0.219 | 25.592 | 5.213 | 69.194 | 0.672 | 0.137 | 1.818 |
| D-13 | 4 | 20.5 | 209.7 | 1467.250 | 482.750 | 0.272 | 42.125 | 4.029 | 53.846 | 1.379 | 0.132 | 1.762 |
| D-13 | 4 | 22.5 | 211.7 | 1491.312 | 458.688 | 0.269 | 35.294 | 5.147 | 59.559 | 1.146 | 0.167 | 1.935 |
| D-13 | 4 | 24.5 | 213.7 | 1515.464 | 434.536 | 0.299 | 35.274 | 4.110 | 60.616 | 1.278 | 0.149 | 2.196 |
| D-13 | 4 | 26.5 | 215.7 | 1539.702 | 410.298 | 0.270 | 41.288 | 4.167 | 54.545 | 1.356 | 0.137 | 1.791 |
| D-13 | 4 | 28.5 | 217.7 | 1564.024 | 385.976 | 0.263 | 27.273 | 6.324 | 66.403 | 0.875 | 0.203 | 2.131 |
| D-13 | 4 | 30.5 | 219.7 | 1588.430 | 361.570 | 0.250 | 26.800 | 6.800 | 66.400 | 0.820 | 0.208 | 2.032 |
| D-13 | 4 | 32.5 | 221.7 | 1612.918 | 337.082 | 0.221 | 31.193 | 5.963 | 62.844 | 0.847 | 0.162 | 1.706 |
| D-13 | 4 | 34.5 | 223.7 | 1637.485 | 312.515 | 0.256 | 30.709 | 5.118 | 64.173 | 0.969 | 0.161 | 2.024 |
| D-13 | 4 | 36.5 | 225.7 | 1662.130 | 287.870 | 0.244 | 34.583 | 6.250 | 59.167 | 1.043 | 0.188 | 1.784 |
| D-13 | 4 | 38.5 | 227.7 | 1686.851 | 263.149 | 0.344 | 56.765 | 5.000 | 38.235 | 2.421 | 0.213 | 1.631 |
| D-13 | 4 | 40.5 | 229.7 | 1711.647 | 238.353 | 0.250 | 43.902 | 5.285 | 50.813 | 1.365 | 0.164 | 1.580 |
| D-13 | 4 | 42.5 | 231.7 | 1736.516 | 213.484 | 0.285 | 47.101 | 5.072 | 47.826 | 1.674 | 0.180 | 1.700 |
| D-13 | 4 | 44.5 | 233.7 | 1761.457 | 188.543 | 0.277 | 38.148 | 7.778 | 54.074 | 1.323 | 0.270 | 1.876 |
| D-13 | 4 | 48.5 | 237.7 | 1811.546 | 138.454 | 0.200 | 41.837 | 4.592 | 53.571 | 1.052 | 0.115 | 1.347 |
| D-13 | 4 | 50.5 | 239.7 | 1836.692 | 113.308 | 0.210 | 42.439 | 6.829 | 50.732 | 1.123 | 0.181 | 1.343 |
| D-13 | 4 | 52.5 | 241.7 | 1861.904 | 88.096 | 0.250 | 44.898 | 5.306 | 49.796 | 1.419 | 0.168 | 1.573 |
| D-13 | 4 | 54.5 | 243.7 | 1887.179 | 62.821 | 0.331 | 57.798 | 4.587 | 37.615 | 2.424 | 0.192 | 1.577 |
| D-13 | 4 | 56.5 | 245.7 | 1912.518 | 37.482 | 0.320 | 58.805 | 4.088 | 37.107 | 2.390 | 0.166 | 1.508 |
| D-13 | 4 | 58.5 | 247.7 | 1937.917 | 12.083 | 0.319 | 55.732 | 5.414 | 38.854 | 2.263 | 0.220 | 1.578 |
| D-13 | 4 | 60.5 | 249.7 | 1963.377 | -13.377 | 0.395 | 50.508 | 7.614 | 41.878 | 2.545 | 0.384 | 2.111 |
| D-13 | 4 | 62.5 | 251.7 | 1988.895 | -38.895 | 0.349 | 47.839 | 6.916 | 45.245 | 2.135 | 0.309 | 2.019 |
| D-13 | 4 | 64.5 | 253.7 | 2014.470 | -64.470 | 0.267 | 38.174 | 9.129 | 52.697 | 1.306 | 0.312 | 1.803 |
| D-13 | 4 | 66.5 | 255.7 | 2040.101 | -90.101 | 0.386 | 48.177 | 8.594 | 43.229 | 2.388 | 0.426 | 2.143 |
| D-13 | 4 | 68.5 | 257.7 | 2065.787 | -115.787 | 0.348 | 53.779 | 6.105 | 40.116 | 2.409 | 0.273 | 1.797 |
| D-13 | 4 | 70.5 | 259.7 | 2091.526 | -141.526 | 0.237 | 36.522 | 5.217 | 58.261 | 1.116 | 0.159 | 1.781 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 4 | 72.5 | 261.7 | 2117.318 | -167.318 | 0.269 | 39.394 | 6.439 | 54.167 | 1.369 | 0.224 | 1.883 |
| D-13 | 4 | 74.5 | 263.7 | 2143.161 | -193.161 | 0.338 | 48.802 | 6.886 | 44.311 | 2.136 | 0.301 | 1.939 |
| D-13 | 4 | 76.5 | 265.7 | 2169.054 | -219.054 | 0.243 | 32.083 | 9.167 | 58.750 | 1.011 | 0.289 | 1.852 |
| D-13 | 4 | 78.5 | 267.7 | 2194.996 | -244.996 | 0.275 | 33.708 | 9.738 | 56.554 | 1.205 | 0.348 | 2.021 |
| D-13 | 4 | 80.5 | 269.7 | 2220.985 | -270.985 | 0.305 | 32.013 | 9.241 | 58.746 | 1.271 | 0.367 | 2.333 |
| D-13 | 4 | 82.5 | 271.7 | 2247.021 | -297.021 | 0.271 | 36.940 | 8.955 | 54.104 | 1.306 | 0.316 | 1.912 |
| D-13 | 4 | 84.5 | 273.7 | 2273.103 | -323.103 | 0.342 | 41.471 | 7.941 | 50.588 | 1.853 | 0.355 | 2.260 |
| D-13 | 4 | 86.5 | 275.7 | 2299.230 | -349.230 | 0.263 | 27.799 | 11.583 | 60.618 | 0.957 | 0.399 | 2.086 |
| D-13 | 4 | 88.5 | 277.7 | 2325.400 | -375.400 | 0.280 | 19.928 | 12.681 | 67.391 | 0.731 | 0.465 | 2.471 |
| D-13 | 5 | 20.5 | 278.0 | 2329.329 | -379.329 | 0.272 | 21.591 | 12.879 | 65.530 | 0.770 | 0.459 | 2.337 |
| D-13 | 5 | 22.5 | 280.0 | 2355.548 | -405.548 | 0.243 | 24.686 | 10.042 | 65.272 | 0.788 | 0.320 | 2.083 |
| D-13 | 5 | 24.5 | 282.0 | 2381.809 | -431.809 | 0.292 | 22.028 | 12.238 | 65.734 | 0.846 | 0.470 | 2.524 |
| D-13 | 5 | 26.5 | 284.0 | 2408.111 | -458.111 | 0.302 | 21.575 | 14.041 | 64.384 | 0.858 | 0.558 | 2.561 |
| D-13 | 5 | 28.5 | 286.0 | 2434.453 | -484.453 | 0.230 | 26.222 | 8.000 | 65.778 | 0.796 | 0.243 | 1.996 |
| D-13 | 5 | 30.5 | 288.0 | 2460.833 | -510.833 | 0.328 | 19.814 | 13.313 | 66.873 | 0.858 | 0.577 | 2.897 |
| D-13 | 5 | 32.5 | 290.0 | 2487.252 | -537.252 | 0.276 | 22.059 | 12.868 | 65.074 | 0.805 | 0.470 | 2.376 |
| D-13 | 5 | 34.5 | 292.0 | 2513.708 | -563.708 | 0.275 | 34.815 | 13.333 | 51.852 | 1.268 | 0.486 | 1.889 |
| D-13 | 5 | 36.5 | 294.0 | 2540.201 | -590.201 | 0.221 | 23.697 | 12.322 | 63.981 | 0.695 | 0.361 | 1.876 |
| D-13 | 5 | 38.5 | 296.0 | 2566.730 | -616.730 | 0.290 | 19.788 | 17.314 | 62.898 | 0.762 | 0.667 | 2.423 |
| D-13 | 5 | 40.5 | 298.0 | 2593.294 | -643.294 | 0.269 | 33.716 | 16.475 | 49.808 | 1.206 | 0.589 | 1.782 |
| D-13 | 5 | 42.5 | 300.0 | 2619.892 | -669.892 | 0.282 | 19.495 | 16.968 | 63.538 | 0.732 | 0.637 | 2.386 |
| D-13 | 5 | 44.5 | 302.0 | 2646.525 | -696.525 | 0.246 | 19.087 | 16.183 | 64.730 | 0.626 | 0.531 | 2.123 |
| D-13 | 5 | 46.5 | 304.0 | 2673.190 | -723.190 | 0.275 | 20.956 | 15.441 | 63.603 | 0.769 | 0.567 | 2.335 |
| D-13 | 5 | 48.5 | 306.0 | 2699.889 | -749.889 | 0.293 | 18.531 | 16.434 | 65.035 | 0.726 | 0.644 | 2.547 |
| D-13 | 5 | 50.5 | 308.0 | 2726.619 | -776.619 | 0.311 | 16.340 | 17.974 | 65.686 | 0.680 | 0.748 | 2.734 |
| D-13 | 5 | 52.5 | 310.0 | 2753.381 | -803.381 | 0.306 | 18.333 | 17.667 | 64.000 | 0.752 | 0.724 | 2.624 |
| D-13 | 5 | 54.5 | 312.0 | 2780.173 | -830.173 | 0.293 | 18.339 | 19.377 | 62.284 | 0.721 | 0.761 | 2.448 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 5 | 56.5 | 314.0 | 2806.997 | -856.997 | 0.359 | 16.239 | 23.647 | 60.114 | 0.783 | 1.140 | 2.898 |
| D-13 | 5 | 58.5 | 316.0 | 2833.850 | -883.850 | 0.345 | 15.774 | 24.405 | 59.821 | 0.731 | 1.132 | 2.774 |
| D-13 | 5 | 60.5 | 318.0 | 2860.732 | -910.732 | 0.273 | 19.030 | 19.030 | 61.940 | 0.699 | 0.699 | 2.275 |
| D-13 | 5 | 62.5 | 320.0 | 2887.644 | -937.644 | 0.300 | 18.983 | 19.322 | 61.695 | 0.767 | 0.781 | 2.493 |
| D-13 | 5 | 64.5 | 322.0 | 2914.585 | -964.585 | 0.292 | 24.561 | 22.807 | 52.632 | 0.967 | 0.898 | 2.072 |
| D-13 | 5 | 66.5 | 324.0 | 2941.554 | -991.554 | 0.362 | 14.327 | 23.782 | 61.891 | 0.700 | 1.162 | 3.024 |
| D-13 | 5 | 68.5 | 326.0 | 2968.551 | -1018.551 | 0.350 | 13.703 | 25.656 | 60.641 | 0.648 | 1.213 | 2.868 |
| D-13 | 5 | 70.5 | 328.0 | 2995.576 | -1045.576 | 0.326 | 15.094 | 22.013 | 62.893 | 0.666 | 0.971 | 2.773 |
| D-13 | 5 | 72.5 | 330.0 | 3022.628 | -1072.628 | 0.365 | 14.601 | 22.039 | 63.361 | 0.722 | 1.089 | 3.131 |
| D-13 | 5 | 74.5 | 332.0 | 3049.708 | -1099.708 | 0.396 | 15.979 | 21.907 | 62.113 | 0.858 | 1.176 | 3.334 |
| D-13 | 5 | 76.5 | 334.0 | 3076.814 | -1126.814 | 0.378 | 14.628 | 23.138 | 62.234 | 0.750 | 1.187 | 3.191 |
| D-13 | 5 | 78.5 | 336.0 | 3103.947 | -1153.947 | 0.387 | 13.830 | 22.606 | 63.564 | 0.727 | 1.188 | 3.341 |
| D-13 | 5 | 80.5 | 338.0 | 3131.107 | -1181.107 | 0.344 | 13.783 | 24.340 | 61.877 | 0.644 | 1.138 | 2.893 |
| D-13 | 5 | 82.5 | 340.0 | 3158.293 | -1208.293 | 0.438 | 12.587 | 27.040 | 60.373 | 0.750 | 1.611 | 3.597 |
| D-13 | 12 | 34.5 | 340.7 | 3167.815 | -1217.815 | 0.381 | 13.953 | 26.098 | 59.948 | 0.724 | 1.353 | 3.109 |
| D-13 | 12 | 36.5 | 342.7 | 3195.037 | -1245.037 | 0.381 | 14.433 | 25.258 | 60.309 | 0.749 | 1.311 | 3.130 |
| D-13 | 12 | 38.5 | 344.7 | 3222.285 | -1272.285 | 0.363 | 16.442 | 23.450 | 60.108 | 0.814 | 1.161 | 2.975 |
| D-13 | 12 | 40.5 | 346.7 | 3249.559 | -1299.559 | 0.303 | 18.987 | 16.456 | 64.557 | 0.785 | 0.681 | 2.670 |
| D-13 | 12 | 42.5 | 348.7 | 3276.859 | -1326.859 | 0.349 | 13.598 | 23.229 | 63.173 | 0.648 | 1.108 | 3.012 |
| D-13 | 12 | 44.5 | 350.7 | 3304.185 | -1354.185 | 0.330 | 15.060 | 22.892 | 62.048 | 0.680 | 1.033 | 2.800 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 12 | 46.5 | 352.7 | 3331.538 | -1381.538 | 0.384 | 15.722 | 21.907 | 62.371 | 0.826 | 1.152 | 3.279 |
| D-13 | 12 | 48.5 | 354.7 | 3358.916 | -1408.916 | 0.331 | 15.569 | 20.060 | 64.371 | 0.706 | 0.910 | 2.920 |
| D-13 | 12 | 50.5 | 356.7 | 3386.321 | -1436.321 | 0.277 | 18.794 | 18.794 | 62.411 | 0.714 | 0.714 | 2.371 |
| D-13 | 12 | 52.5 | 358.7 | 3413.752 | -1463.752 | 0.275 | 18.085 | 16.667 | 65.248 | 0.683 | 0.629 | 2.463 |
| D-13 | 12 | 54.5 | 360.7 | 3441.210 | -1491.210 | 0.290 | 17.230 | 17.230 | 65.541 | 0.687 | 0.687 | 2.612 |
| D-13 | 12 | 56.5 | 362.7 | 3468.694 | -1518.694 | 0.378 | 13.351 | 19.895 | 66.754 | 0.694 | 1.034 | 3.471 |
| D-13 | 12 | 58.5 | 364.7 | 3496.205 | -1546.205 | 0.330 | 15.315 | 18.619 | 66.066 | 0.696 | 0.846 | 3.002 |
| D-13 | 12 | 60.5 | 366.7 | 3523.743 | -1573.743 | 0.312 | 17.350 | 14.196 | 68.454 | 0.746 | 0.610 | 2.944 |
| D-13 | 12 | 62.5 | 368.7 | 3551.309 | -1601.309 | 0.325 | 16.820 | 16.514 | 66.667 | 0.754 | 0.740 | 2.989 |
| D-13 | 12 | 64.5 | 370.7 | 3578.902 | -1628.902 | 0.278 | 19.858 | 13.475 | 66.667 | 0.762 | 0.517 | 2.560 |
| D-13 | 12 | 66.5 | 372.7 | 3606.522 | -1656.522 | 0.314 | 17.957 | 14.551 | 67.492 | 0.779 | 0.632 | 2.930 |
| D-13 | 12 | 68.5 | 374.7 | 3634.171 | -1684.171 | 0.339 | 16.092 | 14.943 | 68.966 | 0.755 | 0.701 | 3.235 |
| D-13 | 12 | 70.5 | 376.7 | 3661.849 | -1711.849 | 0.352 | 16.111 | 19.444 | 64.444 | 0.786 | 0.948 | 3.142 |
| D-13 | 12 | 72.5 | 378.7 | 3689.555 | -1739.555 | 0.347 | 15.775 | 20.000 | 64.225 | 0.759 | 0.962 | 3.091 |
| D-13 | 12 | 74.5 | 380.7 | 3717.290 | -1767.290 | 0.323 | 18.485 | 20.303 | 61.212 | 0.829 | 0.910 | 2.745 |
| D-13 | 12 | 76.5 | 382.7 | 3745.055 | -1795.055 | 0.355 | 15.512 | 24.100 | 60.388 | 0.765 | 1.189 | 2.979 |
| D-13 | 12 | 78.5 | 384.7 | 3772.850 | -1822.850 | 0.278 | 19.298 | 20.000 | 60.702 | 0.746 | 0.774 | 2.348 |
| D-13 | 12 | 80.5 | 386.7 | 3800.676 | -1850.676 | 0.286 | 21.160 | 19.113 | 59.727 | 0.843 | 0.761 | 2.379 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 12 | 82.5 | 388.7 | 3828.533 | -1878.533 | 0.350 | 14.203 | 26.667 | 59.130 | 0.693 | 1.301 | 2.886 |
| D-13 | 12 | 84.5 | 390.7 | 3856.421 | -1906.421 | 0.306 | 16.554 | 22.297 | 61.149 | 0.707 | 0.953 | 2.612 |
| D-13 | 12 | 86.5 | 392.7 | 3884.342 | -1934.342 | 0.369 | 13.550 | 27.371 | 59.079 | 0.699 | 1.412 | 3.047 |
| D-13 | 12 | 88.5 | 394.7 | 3912.295 | -1962.295 | 0.291 | 16.835 | 22.222 | 60.943 | 0.685 | 0.905 | 2.481 |
| E-13 | 8 | 30.5 | 396.5 | 3937.482 | -1987.482 | 0.424 | 14.070 | 27.387 | 58.543 | 0.836 | 1.627 | 3.477 |
| E-13 | 8 | 32.5 | 398.5 | 3965.499 | -2015.499 | 0.380 | 14.485 | 26.741 | 58.774 | 0.772 | 1.425 | 3.133 |
| E-13 | 8 | 34.5 | 400.5 | 3993.551 | -2043.551 | 0.408 | 13.043 | 29.156 | 57.801 | 0.747 | 1.671 | 3.312 |
| E-13 | 8 | 36.5 | 402.5 | 4021.638 | -2071.638 | 0.438 | 12.143 | 30.476 | 57.381 | 0.748 | 1.877 | 3.534 |
| E-13 | 8 | 38.5 | 404.5 | 4049.762 | -2099.762 | 0.365 | 14.740 | 26.012 | 59.249 | 0.758 | 1.337 | 3.045 |
| E-13 | 8 | 40.5 | 406.5 | 4077.922 | -2127.922 | 0.432 | 13.592 | 26.456 | 59.951 | 0.828 | 1.611 | 3.651 |
| E-13 | 8 | 42.5 | 408.5 | 4106.119 | -2156.119 | 0.371 | 14.162 | 26.012 | 59.827 | 0.742 | 1.362 | 3.134 |
| E-13 | 8 | 44.5 | 410.5 | 4134.355 | -2184.355 | 0.367 | 15.805 | 24.425 | 59.770 | 0.820 | 1.267 | 3.101 |
| E-13 | 8 | 46.5 | 412.5 | 4162.630 | -2212.630 | 0.364 | 15.743 | 23.032 | 61.224 | 0.811 | 1.187 | 3.155 |
| E-13 | 8 | 48.5 | 414.5 | 4190.945 | -2240.945 | 0.358 | 17.804 | 22.255 | 59.941 | 0.904 | 1.130 | 3.042 |
| E-13 | 8 | 50.5 | 416.5 | 4219.301 | -2269.301 | 0.392 | 13.514 | 27.568 | 58.919 | 0.752 | 1.534 | 3.279 |
| E-13 | 8 | 52.5 | 418.5 | 4247.698 | -2297.698 | 0.391 | 14.714 | 25.341 | 59.946 | 0.818 | 1.409 | 3.333 |
| E-13 | 8 | 54.5 | 420.5 | 4276.139 | -2326.139 | 0.328 | 15.161 | 24.839 | 60.000 | 0.708 | 1.160 | 2.803 |
| E-13 | 8 | 56.5 | 422.5 | 4304.623 | -2354.623 | 0.388 | 14.754 | 24.863 | 60.383 | 0.817 | 1.376 | 3.342 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E-13 | 8 | 58.5 | 424.5 | 4333.151 | -2383.151 | 0.330 | 16.294 | 23.642 | 60.064 | 0.768 | 1.115 | 2.832 |
| D-13 | 13 | 24.5 | 426.5 | 4361.726 | -2411.726 | 0.303 | 16.835 | 20.539 | 62.626 | 0.730 | 0.891 | 2.716 |
| D-13 | 13 | 26.5 | 428.5 | 4390.347 | -2440.347 | 0.326 | 15.839 | 22.671 | 61.491 | 0.740 | 1.059 | 2.873 |
| D-13 | 13 | 28.5 | 430.5 | 4419.015 | -2469.015 | 0.313 | 17.572 | 20.128 | 62.300 | 0.790 | 0.905 | 2.800 |
| D-13 | 13 | 30.5 | 432.5 | 4447.733 | -2497.733 | 0.319 | 15.924 | 20.382 | 63.694 | 0.731 | 0.935 | 2.923 |
| D-13 | 13 | 32.5 | 434.5 | 4476.501 | -2526.501 | 0.377 | 14.058 | 23.607 | 62.334 | 0.764 | 1.282 | 3.386 |
| D-13 | 13 | 34.5 | 436.5 | 4505.319 | -2555.319 | 0.295 | 16.502 | 16.832 | 66.667 | 0.703 | 0.717 | 2.839 |
| D-13 | 13 | 36.5 | 438.5 | 4534.190 | -2584.190 | 0.319 | 17.778 | 18.413 | 63.810 | 0.820 | 0.849 | 2.944 |
| D-13 | 13 | 38.5 | 440.5 | 4563.115 | -2613.115 | 0.301 | 16.667 | 16.270 | 67.063 | 0.727 | 0.710 | 2.925 |
| D-13 | 13 | 40.5 | 442.5 | 4592.094 | -2642.094 | 0.351 | 14.900 | 21.777 | 63.324 | 0.759 | 1.110 | 3.227 |
| D-13 | 13 | 42.5 | 444.5 | 4621.129 | -2671.129 | 0.505 | 9.881 | 33.794 | 56.324 | 0.726 | 2.482 | 4.137 |
| D-13 | 13 | 44.5 | 446.5 | 4650.221 | -2700.221 | 0.310 | 14.887 | 22.654 | 62.460 | 0.673 | 1.024 | 2.822 |
| D-13 | 13 | 46.5 | 448.5 | 4679.372 | -2729.372 | 0.383 | 14.133 | 25.333 | 60.533 | 0.791 | 1.417 | 3.386 |
| D-13 | 13 | 48.5 | 450.5 | 4708.583 | -2758.583 | 0.323 | 16.149 | 21.739 | 62.112 | 0.763 | 1.028 | 2.936 |
| D-13 | 13 | 50.5 | 452.5 | 4737.855 | -2787.855 | 0.317 | 16.118 | 20.395 | 63.487 | 0.749 | 0.948 | 2.952 |
| D-13 | 13 | 52.5 | 454.5 | 4767.190 | -2817.190 | 0.400 | 12.723 | 26.718 | 60.560 | 0.748 | 1.571 | 3.561 |
| D-13 | 13 | 54.5 | 456.5 | 4796.588 | -2846.588 | 0.341 | 14.072 | 23.952 | 61.976 | 0.707 | 1.203 | 3.113 |
| D-13 | 13 | 56.5 | 458.5 | 4826.052 | -2876.052 | 0.378 | 13.115 | 25.410 | 61.475 | 0.732 | 1.418 | 3.431 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 13 | 58.5 | 460.5 | 4855.583 | -2905.583 | 0.298 | 17.230 | 17.905 | 64.865 | 0.760 | 0.790 | 2.861 |
| D-13 | 13 | 60.5 | 462.5 | 4885.183 | -2935.183 | 0.288 | 16.319 | 20.833 | 62.847 | 0.697 | 0.890 | 2.685 |
| D-13 | 13 | 62.5 | 464.5 | 4914.852 | -2964.852 | 0.315 | 16.612 | 19.870 | 63.518 | 0.778 | 0.931 | 2.975 |
| D-13 | 13 | 64.5 | 466.5 | 4944.593 | -2994.593 | 0.387 | 14.400 | 23.733 | 61.867 | 0.831 | 1.369 | 3.569 |
| D-13 | 13 | 66.5 | 468.5 | 4974.407 | -3024.407 | 0.301 | 16.443 | 20.134 | 63.423 | 0.740 | 0.906 | 2.853 |
| D-13 | 13 | 68.5 | 470.5 | 5004.296 | -3054.296 | 0.292 | 18.375 | 18.728 | 62.898 | 0.804 | 0.819 | 2.752 |
| D-13 | 13 | 70.5 | 472.5 | 5034.261 | -3084.261 | 0.309 | 17.021 | 18.794 | 64.184 | 0.790 | 0.872 | 2.979 |
| D-13 | 13 | 72.5 | 474.5 | 5064.304 | -3114.304 | 0.273 | 17.978 | 19.850 | 62.172 | 0.739 | 0.816 | 2.556 |
| D-13 | 13 | 74.5 | 476.5 | 5094.427 | -3144.427 | 0.288 | 16.429 | 19.286 | 64.286 | 0.715 | 0.839 | 2.796 |
| D-13 | 13 | 76.5 | 478.5 | 5124.631 | -3174.631 | 0.298 | 16.376 | 18.815 | 64.808 | 0.739 | 0.849 | 2.925 |
| D-13 | 13 | 78.5 | 480.5 | 5154.918 | -3204.918 | 0.287 | 17.794 | 17.438 | 64.769 | 0.776 | 0.760 | 2.823 |
| D-13 | 13 | 80.5 | 482.5 | 5185.290 | -3235.290 | 0.297 | 21.277 | 14.539 | 64.184 | 0.962 | 0.658 | 2.903 |
| D-13 | 13 | 82.5 | 484.5 | 5215.748 | -3265.748 | 0.305 | 20.000 | 16.000 | 64.000 | 0.932 | 0.745 | 2.981 |
| D-13 | 13 | 84.5 | 486.5 | 5246.295 | -3296.295 | 0.287 | 20.357 | 15.000 | 64.643 | 0.895 | 0.659 | 2.842 |
| D-13 | 13 | 86.5 | 488.5 | 5276.932 | -3326.932 | 0.304 | 18.644 | 18.305 | 63.051 | 0.871 | 0.855 | 2.945 |
| D-13 | 13 | 88.5 | 490.5 | 5307.662 | -3357.662 | 0.363 | 18.444 | 20.461 | 61.095 | 1.032 | 1.145 | 3.418 |
| D-13 | 13 | 90.5 | 492.5 | 5338.485 | -3388.485 | 0.323 | 23.344 | 12.934 | 63.722 | 1.166 | 0.646 | 3.182 |
| D-13 | 13 | 92.5 | 494.5 | 5369.405 | -3419.405 | 0.332 | 19.814 | 17.028 | 63.158 | 1.020 | 0.877 | 3.252 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 13 | 94.5 | 496.5 | 5400.422 | -3450.422 | 0.294 | 20.690 | 17.586 | 61.724 | 0.946 | 0.804 | 2.821 |
| E-13 | 9 | 60.5 | 497.5 | 5415.968 | -3465.968 | 0.433 | 12.443 | 29.186 | 58.371 | 0.840 | 1.969 | 3.939 |
| E-13 | 9 | 62.5 | 499.5 | 5447.136 | -3497.136 | 0.278 | 17.668 | 17.314 | 65.018 | 0.768 | 0.753 | 2.826 |
| E-13 | 9 | 64.5 | 501.5 | 5478.407 | -3528.407 | 0.250 | 20.849 | 13.900 | 65.251 | 0.818 | 0.545 | 2.559 |
| E-13 | 9 | 66.5 | 503.5 | 5509.783 | -3559.783 | 0.267 | 18.248 | 15.328 | 66.423 | 0.767 | 0.644 | 2.792 |
| E-13 | 9 | 68.5 | 505.5 | 5541.266 | -3591.266 | 0.319 | 16.109 | 21.884 | 62.006 | 0.812 | 1.103 | 3.124 |
| E-13 | 9 | 70.5 | 507.5 | 5572.858 | -3622.858 | 0.314 | 16.511 | 19.003 | 64.486 | 0.822 | 0.946 | 3.210 |
| E-13 | 9 | 72.5 | 509.5 | 5604.561 | -3654.561 | 0.335 | 16.618 | 19.825 | 63.557 | 0.886 | 1.057 | 3.387 |
| E-13 | 9 | 74.5 | 511.5 | 5636.378 | -3686.378 | 0.361 | 14.795 | 23.562 | 61.644 | 0.853 | 1.358 | 3.553 |
| E-13 | 9 | 76.5 | 513.5 | 5668.310 | -3718.310 | 0.405 | 13.768 | 24.396 | 61.836 | 0.894 | 1.583 | 4.013 |
| E-13 | 9 | 78.5 | 515.5 | 5700.360 | -3750.360 | 0.312 | 18.437 | 15.625 | 65.938 | 0.925 | 0.784 | 3.309 |
| E-13 | 9 | 80.5 | 517.5 | 5732.530 | -3782.530 | 0.329 | 15.408 | 17.523 | 67.069 | 0.818 | 0.931 | 3.563 |
| E-13 | 9 | 82.5 | 519.5 | 5764.822 | -3814.822 | 0.342 | 14.857 | 19.714 | 65.429 | 0.824 | 1.093 | 3.627 |
| E-13 | 9 | 84.5 | 521.5 | 5797.239 | -3847.239 | 0.346 | 15.297 | 20.113 | 64.589 | 0.861 | 1.132 | 3.636 |
| E-13 | 9 | 86.5 | 523.5 | 5829.783 | -3879.783 | 0.387 | 13.198 | 23.350 | 63.452 | 0.834 | 1.476 | 4.012 |
| E-13 | 9 | 88.5 | 525.5 | 5862.456 | -3912.456 | 0.365 | 15.508 | 21.658 | 62.834 | 0.928 | 1.297 | 3.762 |
| E-13 | 9 | 90.5 | 527.5 | 5895.260 | -3945.260 | 0.312 | 16.667 | 15.723 | 67.610 | 0.856 | 0.808 | 3.474 |
| E-13 | 9 | 92.5 | 529.5 | 5928.199 | -3978.199 | 0.342 | 16.427 | 16.715 | 66.859 | 0.929 | 0.945 | 3.781 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E-13 | 9 | 94.5 | 531.5 | 5961.273 | -4011.273 | 0.413 | 14.081 | 16.706 | 69.212 | 0.966 | 1.146 | 4.747 |
| E-13 | 9 | 96.5 | 533.5 | 5994.487 | -4044.487 | 0.389 | 14.975 | 14.721 | 70.305 | 0.971 | 0.955 | 4.561 |
| E-13 | 9 | 98.5 | 535.5 | 6027.842 | -4077.842 | 0.422 | 15.313 | 20.186 | 64.501 | 1.081 | 1.425 | 4.554 |
| D-13 | 14 | 42.5 | 536.5 | 6044.573 | -4094.573 | 0.499 | 10.625 | 35.625 | 53.750 | 0.890 | 2.984 | 4.502 |
| D-13 | 14 | 44.5 | 538.5 | 6078.145 | -4128.145 | 0.366 | 13.803 | 20.282 | 65.915 | 0.852 | 1.252 | 4.067 |
| D-13 | 14 | 46.5 | 540.5 | 6111.864 | -4161.864 | 0.379 | 14.905 | 17.886 | 67.209 | 0.957 | 1.148 | 4.314 |
| D-13 | 14 | 48.5 | 542.5 | 6145.733 | -4195.733 | 0.394 | 15.026 | 17.617 | 67.358 | 1.007 | 1.181 | 4.515 |
| D-13 | 14 | 50.5 | 544.5 | 6179.755 | -4229.755 | 0.308 | 15.789 | 16.118 | 68.092 | 0.831 | 0.848 | 3.584 |
| D-13 | 14 | 52.5 | 546.5 | 6213.933 | -4263.933 | 0.343 | 16.766 | 19.162 | 64.072 | 0.987 | 1.128 | 3.773 |
| D-13 | 14 | 54.5 | 548.5 | 6248.268 | -4298.268 | 0.292 | 15.058 | 16.988 | 67.954 | 0.758 | 0.856 | 3.422 |
| D-13 | 14 | 56.5 | 550.5 | 6282.765 | -4332.765 | 0.358 | 15.588 | 21.765 | 62.647 | 0.967 | 1.350 | 3.887 |
| D-13 | 14 | 58.5 | 552.5 | 6317.424 | -4367.424 | 0.390 | 14.698 | 20.735 | 64.567 | 0.998 | 1.408 | 4.385 |
| D-13 | 14 | 60.5 | 554.5 | 6352.250 | -4402.250 | 0.338 | 13.190 | 19.018 | 67.791 | 0.780 | 1.125 | 4.009 |
| D-13 | 14 | 62.5 | 556.5 | 6387.244 | -4437.244 | 0.415 | 12.099 | 21.975 | 65.926 | 0.883 | 1.604 | 4.811 |
| D-13 | 14 | 64.5 | 558.5 | 6422.411 | -4472.411 | 0.331 | 16.460 | 20.186 | 63.354 | 0.963 | 1.181 | 3.706 |
| D-13 | 14 | 66.5 | 560.5 | 6457.751 | -4507.751 | 0.323 | 21.474 | 17.949 | 60.577 | 1.232 | 1.030 | 3.475 |
| D-13 | 14 | 68.5 | 562.5 | 6493.269 | -4543.269 | 0.342 | 15.789 | 18.885 | 65.325 | 0.964 | 1.153 | 3.988 |
| D-13 | 14 | 70.5 | 564.5 | 6528.967 | -4578.967 | 0.331 | 17.981 | 15.142 | 66.877 | 1.068 | 0.899 | 3.971 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-13 | 14 | 72.5 | 566.5 | 6564.849 | -4614.849 | 0.385 | 13.056 | 17.500 | 69.444 | 0.906 | 1.215 | 4.821 |
| D-13 | 14 | 74.5 | 568.5 | 6600.916 | -4650.916 | 0.321 | 14.423 | 14.103 | 71.474 | 0.839 | 0.821 | 4.159 |
| D-13 | 14 | 76.5 | 570.5 | 6637.172 | -4687.172 | 0.306 | 16.552 | 15.517 | 67.931 | 0.923 | 0.865 | 3.788 |
| D-13 | 14 | 78.5 | 572.5 | 6673.620 | -4723.620 | 0.338 | 15.862 | 16.552 | 67.586 | 0.982 | 1.025 | 4.185 |
| D-13 | 14 | 80.5 | 574.5 | 6710.262 | -4760.262 | 0.353 | 14.076 | 18.475 | 67.449 | 0.915 | 1.201 | 4.386 |
| D-13 | 14 | 82.5 | 576.5 | 6747.103 | -4797.103 | 0.361 | 16.981 | 4.717 | 78.302 | 1.135 | 0.315 | 5.235 |
| D-13 | 14 | 84.5 | 578.5 | 6784.145 | -4834.145 | 0.372 | 13.675 | 20.513 | 65.812 | 0.947 | 1.421 | 4.559 |
| D-13 | 14 | 86.5 | 580.5 | 6821.390 | -4871.390 | 0.373 | 18.011 | 18.280 | 63.710 | 1.258 | 1.277 | 4.450 |
| D-13 | 14 | 88.5 | 582.5 | 6858.843 | -4908.843 | 0.352 | 16.364 | 18.485 | 65.152 | 1.088 | 1.229 | 4.331 |
| D-13 | 14 | 92.5 | 586.5 | 6934.382 | -4984.382 | 0.350 | 16.413 | 20.669 | 62.918 | 1.094 | 1.378 | 4.194 |
| D-13 | 14 | 94.5 | 588.5 | 6972.475 | -5022.475 | 0.358 | 15.480 | 22.291 | 62.229 | 1.059 | 1.525 | 4.257 |
| F-13 | 2 | 56.5 | 588.7 | 6976.296 | -5026.296 | 0.648 | 19.832 | 14.525 | 65.642 | 2.463 | 1.804 | 8.153 |
| F-13 | 2 | 58.5 | 590.7 | 7014.631 | -5064.631 | 0.325 | 18.241 | 17.590 | 64.169 | 1.143 | 1.102 | 4.021 |
| F-13 | 2 | 60.5 | 592.7 | 7053.190 | -5103.190 | 0.371 | 19.822 | 14.497 | 65.680 | 1.426 | 1.043 | 4.725 |
| F-13 | 2 | 62.5 | 594.7 | 7091.974 | -5141.974 | 0.442 | 17.729 | 17.729 | 64.543 | 1.529 | 1.529 | 5.565 |
| F-13 | 2 | 64.5 | 596.7 | 7130.989 | -5180.989 | 0.615 | 17.204 | 16.398 | 66.398 | 2.076 | 1.979 | 8.013 |
| F-13 | 2 | 66.5 | 598.7 | 7170.237 | -5220.237 | 0.505 | 18.023 | 15.988 | 65.988 | 1.797 | 1.594 | 6.579 |
| F-13 | 2 | 68.5 | 600.7 | 7209.722 | -5259.722 | 0.502 | 19.020 | 15.562 | 65.418 | 1.896 | 1.552 | 6.523 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F-13 | 2 | 70.5 | 602.7 | 7249.446 | -5299.446 | 0.715 | 15.468 | 16.122 | 68.410 | 2.210 | 2.304 | 9.775 |
| F-13 | 2 | 72.5 | 604.7 | 7289.414 | -5339.414 | 0.717 | 13.306 | 22.661 | 64.033 | 1.918 | 3.267 | 9.232 |
| F-13 | 2 | 74.5 | 606.7 | 7329.629 | -5379.629 | 0.640 | 16.038 | 18.868 | 65.094 | 2.077 | 2.443 | 8.429 |
| F-13 | 2 | 76.5 | 608.7 | 7370.093 | -5420.093 | 0.605 | 14.062 | 16.071 | 69.866 | 1.732 | 1.980 | 8.606 |
| F-13 | 2 | 78.5 | 610.7 | 7410.812 | -5460.812 | 0.560 | 16.068 | 19.873 | 64.059 | 1.843 | 2.280 | 7.350 |
| F-13 | 2 | 80.5 | 612.7 | 7451.788 | -5501.788 | 0.418 | 15.113 | 20.151 | 64.736 | 1.303 | 1.737 | 5.579 |
| F-13 | 2 | 82.5 | 614.7 | 7493.024 | -5543.024 | 0.355 | 15.882 | 18.529 | 65.588 | 1.170 | 1.365 | 4.831 |
| F-13 | 2 | 84.5 | 616.7 | 7534.525 | -5584.525 | 0.339 | 17.799 | 19.094 | 63.107 | 1.260 | 1.352 | 4.468 |
| F-13 | 2 | 86.5 | 618.7 | 7576.294 | -5626.294 | 0.547 | 15.022 | 23.094 | 61.883 | 1.727 | 2.655 | 7.115 |
| F-13 | 2 | 88.5 | 620.7 | 7618.334 | -5668.334 | 0.327 | 19.655 | 13.448 | 66.897 | 1.360 | 0.930 | 4.628 |
| F-13 | 2 | 90.5 | 622.7 | 7660.650 | -5710.650 | 0.531 | 18.919 | 16.216 | 64.865 | 2.139 | 1.834 | 7.335 |
| F-13 | 2 | 92.5 | 624.7 | 7703.244 | -5753.244 | 0.306 | 17.993 | 15.917 | 66.090 | 1.180 | 1.044 | 4.336 |
| F-13 | 2 | 94.5 | 626.7 | 7746.121 | -5796.121 | 0.405 | 16.327 | 17.493 | 66.181 | 0.817 | 0.876 | 3.313 |

## Appendix C: Composite Magnetic Susceptibility

| Core | Drive | Depth (cm) | Comp. Depth (cm) | Age BP | Age CE | Mag Sus |
|---|---|---|---|---|---|---|
| D-13 | 1 | 0.5 | 0.5 | -63.2 | 2013.2 | 13.5 |
| D-13 | 1 | 1 | 1 | -63.3 | 2013.3 | 10.7 |
| D-13 | 1 | 1.5 | 1.5 | -63.5 | 2013.5 | 10.3 |
| D-13 | 1 | 2 | 2 | -63.6 | 2013.6 | 10.3 |
| D-13 | 1 | 2.5 | 2.5 | -63.7 | 2013.7 | 9.9 |
| D-13 | 1 | 3 | 3 | -63.7 | 2013.7 | 9.3 |
| D-13 | 1 | 3.5 | 3.5 | -63.8 | 2013.8 | 8.4 |
| D-13 | 1 | 4 | 4 | -63.8 | 2013.8 | 8.3 |
| D-13 | 1 | 4.5 | 4.5 | -63.7 | 2013.7 | 9.6 |
| D-13 | 1 | 5 | 5 | -63.7 | 2013.7 | 9.5 |
| D-13 | 1 | 5.5 | 5.5 | -63.6 | 2013.6 | 10.3 |
| D-13 | 1 | 6 | 6 | -63.5 | 2013.5 | 10.8 |
| D-13 | 1 | 6.5 | 6.5 | -63.4 | 2013.4 | 11.1 |
| D-13 | 1 | 7 | 7 | -63.2 | 2013.2 | 11.2 |
| D-13 | 1 | 7.5 | 7.5 | -63.0 | 2013.0 | 11.2 |
| D-13 | 1 | 8 | 8 | -62.8 | 2012.8 | 10.4 |
| D-13 | 1 | 8.5 | 8.5 | -62.6 | 2012.6 | 9.9 |
| D-13 | 1 | 9 | 9 | -62.3 | 2012.3 | 11.6 |
| D-13 | 1 | 9.5 | 9.5 | -62.0 | 2012.0 | 13.3 |
| D-13 | 1 | 10 | 10 | -61.7 | 2011.7 | 12.4 |
| D-13 | 1 | 10.5 | 10.5 | -61.4 | 2011.4 | 13.4 |
| D-13 | 1 | 11 | 11 | -61.0 | 2011.0 | 13.5 |
| D-13 | 1 | 11.5 | 11.5 | -60.6 | 2010.6 | 13.2 |
| D-13 | 1 | 12 | 12 | -60.2 | 2010.2 | 13.8 |
| D-13 | 1 | 12.5 | 12.5 | -59.8 | 2009.8 | 13.6 |
| D-13 | 1 | 13 | 13 | -59.3 | 2009.3 | 13.9 |
| D-13 | 1 | 13.5 | 13.5 | -58.8 | 2008.8 | 14 |
| D-13 | 1 | 14 | 14 | -58.3 | 2008.3 | 14.2 |
| D-13 | 1 | 14.5 | 14.5 | -57.8 | 2007.8 | 14.8 |
| D-13 | 1 | 15 | 15 | -57.2 | 2007.2 | 13.9 |
| D-13 | 1 | 15.5 | 15.5 | -56.6 | 2006.6 | 13.9 |
| D-13 | 1 | 16 | 16 | -56.0 | 2006.0 | 14.7 |
| D-13 | 1 | 16.5 | 16.5 | -55.4 | 2005.4 | 14.6 |
| D-13 | 1 | 17 | 17 | -54.7 | 2004.7 | 14 |
| D-13 | 1 | 17.5 | 17.5 | -54.0 | 2004.0 | 16.1 |
| D-13 | 1 | 18 | 18 | -53.3 | 2003.3 | 20.3 |
| D-13 | 1 | 18.5 | 18.5 | -52.6 | 2002.6 | 18 |
| D-13 | 1 | 19 | 19 | -51.8 | 2001.8 | 12.6 |

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|---|---|---|---|---|---|---|
| D-13 | 1 | 19.5 | 19.5 | -51.0 | 2001.0 | 14.6 |
| D-13 | 1 | 20 | 20 | -50.2 | 2000.2 | 9.1 |
| D-13 | 1 | 20.5 | 20.5 | -49.4 | 1999.4 | 9.5 |
| D-13 | 1 | 21 | 21 | -48.5 | 1998.5 | 11.1 |
| D-13 | 1 | 21.5 | 21.5 | -47.6 | 1997.6 | 12.2 |
| D-13 | 1 | 22 | 22 | -46.7 | 1996.7 | 11.9 |
| D-13 | 1 | 22.5 | 22.5 | -45.8 | 1995.8 | 12.1 |
| D-13 | 1 | 23 | 23 | -44.8 | 1994.8 | 12.2 |
| D-13 | 1 | 23.5 | 23.5 | -43.9 | 1993.9 | 12 |
| D-13 | 1 | 24 | 24 | -42.9 | 1992.9 | 11.7 |
| D-13 | 1 | 24.5 | 24.5 | -41.8 | 1991.8 | 11.6 |
| D-13 | 1 | 25 | 25 | -40.8 | 1990.8 | 11.1 |
| D-13 | 1 | 25.5 | 25.5 | -39.7 | 1989.7 | 10.9 |
| D-13 | 1 | 26 | 26 | -38.6 | 1988.6 | 11.4 |
| D-13 | 1 | 26.5 | 26.5 | -37.5 | 1987.5 | 9.6 |
| D-13 | 1 | 27 | 27 | -36.3 | 1986.3 | 9.4 |
| D-13 | 1 | 27.5 | 27.5 | -35.2 | 1985.2 | 7.9 |
| D-13 | 1 | 28 | 28 | -34.0 | 1984.0 | 8.8 |
| D-13 | 1 | 28.5 | 28.5 | -32.8 | 1982.8 | 14.2 |
| D-13 | 1 | 29 | 29 | -31.5 | 1981.5 | 15.6 |
| D-13 | 1 | 29.5 | 29.5 | -30.3 | 1980.3 | 16.1 |
| D-13 | 1 | 30 | 30 | -29.0 | 1979.0 | 17.7 |
| D-13 | 1 | 30.5 | 30.5 | -27.7 | 1977.7 | 16.3 |
| D-13 | 1 | 31 | 31 | -26.4 | 1976.4 | 15.3 |
| D-13 | 1 | 31.5 | 31.5 | -25.0 | 1975.0 | 18.5 |
| D-13 | 1 | 32 | 32 | -23.7 | 1973.7 | 19.3 |
| D-13 | 1 | 32.5 | 32.5 | -22.3 | 1972.3 | 22.2 |
| D-13 | 1 | 33 | 33 | -20.8 | 1970.8 | 22.4 |
| D-13 | 1 | 33.5 | 33.5 | -19.4 | 1969.4 | 19.4 |
| D-13 | 1 | 34 | 34 | -17.9 | 1967.9 | 19.1 |
| D-13 | 1 | 34.5 | 34.5 | -16.5 | 1966.5 | 16.5 |
| D-13 | 1 | 35 | 35 | -15.0 | 1965.0 | 16.7 |
| D-13 | 1 | 35.5 | 35.5 | -13.4 | 1963.4 | 15.1 |
| D-13 | 1 | 36 | 36 | -11.9 | 1961.9 | 16.5 |
| D-13 | 1 | 36.5 | 36.5 | -10.3 | 1960.3 | 17.1 |
| D-13 | 1 | 37 | 37 | -8.7 | 1958.7 | 15.4 |
| D-13 | 1 | 37.5 | 37.5 | -7.1 | 1957.1 | 17.6 |
| D-13 | 1 | 38 | 38 | -5.5 | 1955.5 | 17.1 |
| D-13 | 1 | 38.5 | 38.5 | -3.8 | 1953.8 | 17.5 |
| D-13 | 1 | 39 | 39 | -2.1 | 1952.1 | 17.5 |
| D-13 | 1 | 39.5 | 39.5 | -0.4 | 1950.4 | 18.1 |

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|---|---|---|---|---|---|---|
| D-13 | 1 | 40 | 40 | 1.3 | 1948.7 | 19.2 |
| D-13 | 1 | 40.5 | 40.5 | 3.1 | 1946.9 | 22.8 |
| D-13 | 1 | 41 | 41 | 4.8 | 1945.2 | 21.2 |
| D-13 | 1 | 41.5 | 41.5 | 6.6 | 1943.4 | 20.9 |
| D-13 | 1 | 42 | 42 | 8.4 | 1941.6 | 18.8 |
| D-13 | 1 | 42.5 | 42.5 | 10.3 | 1939.7 | 18.5 |
| D-13 | 1 | 43 | 43 | 12.1 | 1937.9 | 18.7 |
| D-13 | 1 | 43.5 | 43.5 | 14.0 | 1936.0 | 19.3 |
| D-13 | 1 | 44 | 44 | 15.9 | 1934.1 | 20.2 |
| D-13 | 1 | 44.5 | 44.5 | 17.8 | 1932.2 | 19.2 |
| D-13 | 1 | 45 | 45 | 19.7 | 1930.3 | 21.1 |
| D-13 | 1 | 45.5 | 45.5 | 21.7 | 1928.3 | 19.7 |
| D-13 | 1 | 46 | 46 | 23.7 | 1926.3 | 20.8 |
| D-13 | 1 | 46.5 | 46.5 | 25.7 | 1924.3 | 18.9 |
| D-13 | 1 | 47 | 47 | 27.7 | 1922.3 | 19.5 |
| D-13 | 1 | 47.5 | 47.5 | 29.7 | 1920.3 | 20.4 |
| D-13 | 1 | 48 | 48 | 31.8 | 1918.2 | 21.6 |
| D-13 | 1 | 48.5 | 48.5 | 33.9 | 1916.1 | 27.8 |
| D-13 | 1 | 49 | 49 | 36.0 | 1914.0 | 27.2 |
| D-13 | 1 | 49.5 | 49.5 | 38.1 | 1911.9 | 23.1 |
| D-13 | 1 | 50 | 50 | 40.3 | 1909.7 | 13.9 |
| D-13 | 1 | 50.5 | 50.5 | 42.4 | 1907.6 | 11.4 |
| D-13 | 1 | 51 | 51 | 44.6 | 1905.4 | 16.9 |
| D-13 | 1 | 51.5 | 51.5 | 46.8 | 1903.2 | 13.2 |
| D-13 | 1 | 52 | 52 | 49.0 | 1901.0 | 12.6 |
| D-13 | 1 | 52.5 | 52.5 | 51.3 | 1898.7 | 12.9 |
| D-13 | 1 | 53 | 53 | 53.5 | 1896.5 | 12.9 |
| D-13 | 1 | 53.5 | 53.5 | 55.8 | 1894.2 | 14.8 |
| D-13 | 1 | 54 | 54 | 58.1 | 1891.9 | 17.9 |
| D-13 | 1 | 54.5 | 54.5 | 60.4 | 1889.6 | 14.9 |
| D-13 | 1 | 55 | 55 | 62.8 | 1887.2 | 16 |
| D-13 | 1 | 55.5 | 55.5 | 65.2 | 1884.8 | 14.7 |
| D-13 | 1 | 56 | 56 | 67.5 | 1882.5 | 14.3 |
| D-13 | 1 | 56.5 | 56.5 | 69.9 | 1880.1 | 17.9 |
| D-13 | 1 | 57 | 57 | 72.4 | 1877.6 | 15.7 |
| D-13 | 1 | 57.5 | 57.5 | 74.8 | 1875.2 | 13.5 |
| D-13 | 1 | 58 | 58 | 77.3 | 1872.7 | 13.3 |
| D-13 | 1 | 58.5 | 58.5 | 79.7 | 1870.3 | 16.1 |
| D-13 | 1 | 59 | 59 | 82.2 | 1867.8 | 14.9 |
| D-13 | 1 | 59.5 | 59.5 | 84.8 | 1865.2 | 14.2 |
| D-13 | 1 | 60 | 60 | 87.3 | 1862.7 | 13.6 |

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|---|---|---|---|---|---|---|
| D-13 | 1 | 60.5 | 60.5 | 89.8 | 1860.2 | 15.4 |
| D-13 | 1 | 61 | 61 | 92.4 | 1857.6 | 13.6 |
| D-13 | 1 | 61.5 | 61.5 | 95.0 | 1855.0 | 12.5 |
| D-13 | 1 | 62 | 62 | 97.6 | 1852.4 | 12 |
| D-13 | 1 | 62.5 | 62.5 | 100.3 | 1849.7 | 13.4 |
| D-13 | 1 | 63 | 63 | 102.9 | 1847.1 | 12.8 |
| D-13 | 1 | 63.5 | 63.5 | 105.6 | 1844.4 | 10.7 |
| D-13 | 1 | 64 | 64 | 108.3 | 1841.7 | 10.8 |
| D-13 | 1 | 64.5 | 64.5 | 111.0 | 1839.0 | 11 |
| D-13 | 1 | 65 | 65 | 113.7 | 1836.3 | 9.4 |
| D-13 | 1 | 65.5 | 65.5 | 116.4 | 1833.6 | 11 |
| D-13 | 1 | 66 | 66 | 119.2 | 1830.8 | 9.7 |
| D-13 | 1 | 66.5 | 66.5 | 122.0 | 1828.0 | 10.3 |
| D-13 | 2 | 17.5 | 66.7 | 123.1 | 1826.9 | 10.8 |
| D-13 | 2 | 18 | 67.2 | 125.9 | 1824.1 | 11.2 |
| D-13 | 2 | 18.5 | 67.7 | 128.7 | 1821.3 | 10.4 |
| D-13 | 2 | 19 | 68.2 | 131.6 | 1818.4 | 10.8 |
| D-13 | 2 | 19.5 | 68.7 | 134.4 | 1815.6 | 11.4 |
| D-13 | 2 | 20 | 69.2 | 137.3 | 1812.7 | 10.9 |
| D-13 | 2 | 20.5 | 69.7 | 140.2 | 1809.8 | 10.9 |
| D-13 | 2 | 21 | 70.2 | 143.1 | 1806.9 | 11.2 |
| D-13 | 2 | 21.5 | 70.7 | 146.0 | 1804.0 | 10.7 |
| D-13 | 2 | 22 | 71.2 | 149.0 | 1801.0 | 9.9 |
| D-13 | 2 | 22.5 | 71.7 | 152.0 | 1798.0 | 10.1 |
| D-13 | 2 | 23 | 72.2 | 154.9 | 1795.1 | 9.6 |
| D-13 | 2 | 23.5 | 72.7 | 157.9 | 1792.1 | 10.1 |
| D-13 | 2 | 24 | 73.2 | 161.0 | 1789.0 | 10.5 |
| D-13 | 2 | 24.5 | 73.7 | 164.0 | 1786.0 | 10.3 |
| D-13 | 2 | 25 | 74.2 | 167.0 | 1783.0 | 10.7 |
| D-13 | 2 | 25.5 | 74.7 | 170.1 | 1779.9 | 10.3 |
| D-13 | 2 | 26 | 75.2 | 173.2 | 1776.8 | 10.4 |
| D-13 | 2 | 26.5 | 75.7 | 176.3 | 1773.7 | 9.6 |
| D-13 | 2 | 27 | 76.2 | 179.4 | 1770.6 | 9.5 |
| D-13 | 2 | 27.5 | 76.7 | 182.6 | 1767.4 | 9.2 |
| D-13 | 2 | 28 | 77.2 | 185.7 | 1764.3 | 8.8 |
| D-13 | 2 | 28.5 | 77.7 | 188.9 | 1761.1 | 9.3 |
| D-13 | 2 | 29 | 78.2 | 192.1 | 1757.9 | 10.7 |
| D-13 | 2 | 29.5 | 78.7 | 195.3 | 1754.7 | 10.5 |
| D-13 | 2 | 30 | 79.2 | 198.5 | 1751.5 | 10.7 |
| D-13 | 2 | 30.5 | 79.7 | 201.8 | 1748.2 | 10.9 |
| D-13 | 2 | 31 | 80.2 | 205.0 | 1745.0 | 10.3 |

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| D-13 | 2 | 31.5 | 80.7 | 208.3 | 1741.7 | 11 |
| D-13 | 2 | 32 | 81.2 | 211.6 | 1738.4 | 11.6 |
| D-13 | 2 | 32.5 | 81.7 | 214.9 | 1735.1 | 10.1 |
| D-13 | 2 | 33 | 82.2 | 218.2 | 1731.8 | 11.2 |
| D-13 | 2 | 33.5 | 82.7 | 221.6 | 1728.4 | 11.9 |
| D-13 | 2 | 34 | 83.2 | 224.9 | 1725.1 | 12.6 |
| D-13 | 2 | 34.5 | 83.7 | 228.3 | 1721.7 | 11.2 |
| D-13 | 2 | 35 | 84.2 | 231.7 | 1718.3 | 11.7 |
| D-13 | 2 | 35.5 | 84.7 | 235.1 | 1714.9 | 12.3 |
| D-13 | 2 | 36 | 85.2 | 238.5 | 1711.5 | 11.6 |
| D-13 | 2 | 36.5 | 85.7 | 242.0 | 1708.0 | 11.3 |
| D-13 | 2 | 37 | 86.2 | 245.4 | 1704.6 | 13.2 |
| D-13 | 2 | 37.5 | 86.7 | 248.9 | 1701.1 | 12.4 |
| D-13 | 2 | 38 | 87.2 | 252.4 | 1697.6 | 11.8 |
| D-13 | 2 | 38.5 | 87.7 | 255.9 | 1694.1 | 11.7 |
| D-13 | 2 | 39 | 88.2 | 259.4 | 1690.6 | 11.8 |
| D-13 | 2 | 39.5 | 88.7 | 262.9 | 1687.1 | 11.1 |
| D-13 | 2 | 40 | 89.2 | 266.5 | 1683.5 | 11.2 |
| D-13 | 2 | 40.5 | 89.7 | 270.0 | 1680.0 | 11.4 |
| D-13 | 2 | 41 | 90.2 | 273.6 | 1676.4 | 11.4 |
| D-13 | 2 | 41.5 | 90.7 | 277.2 | 1672.8 | 11.8 |
| D-13 | 2 | 42 | 91.2 | 280.8 | 1669.2 | 12.4 |
| D-13 | 2 | 42.5 | 91.7 | 284.5 | 1665.5 | 10.9 |
| D-13 | 2 | 43 | 92.2 | 288.1 | 1661.9 | 10.9 |
| D-13 | 2 | 43.5 | 92.7 | 291.8 | 1658.2 | 11 |
| D-13 | 2 | 44 | 93.2 | 295.4 | 1654.6 | 10.5 |
| D-13 | 2 | 44.5 | 93.7 | 299.1 | 1650.9 | 10.7 |
| D-13 | 2 | 45 | 94.2 | 302.8 | 1647.2 | 10.4 |
| D-13 | 2 | 45.5 | 94.7 | 306.5 | 1643.5 | 10.1 |
| D-13 | 2 | 46 | 95.2 | 310.3 | 1639.7 | 10.3 |
| D-13 | 2 | 46.5 | 95.7 | 314.0 | 1636.0 | 10.7 |
| D-13 | 2 | 47 | 96.2 | 317.8 | 1632.2 | 10.6 |
| D-13 | 2 | 47.5 | 96.7 | 321.6 | 1628.4 | 9.5 |
| D-13 | 2 | 48 | 97.2 | 325.4 | 1624.6 | 9.1 |
| D-13 | 2 | 48.5 | 97.7 | 329.2 | 1620.8 | 9.3 |
| D-13 | 2 | 49 | 98.2 | 333.0 | 1617.0 | 9.3 |
| D-13 | 2 | 49.5 | 98.7 | 336.8 | 1613.2 | 9.1 |
| D-13 | 2 | 50 | 99.2 | 340.7 | 1609.3 | 8.9 |
| D-13 | 2 | 50.5 | 99.7 | 344.6 | 1605.4 | 8.6 |
| D-13 | 2 | 51 | 100.2 | 348.4 | 1601.6 | 9.1 |
| D-13 | 2 | 51.5 | 100.7 | 352.3 | 1597.7 | 9.5 |

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|---|---|---|---|---|---|---|
| D-13 | 2 | 52 | 101.2 | 356.2 | 1593.8 | 8.6 |
| D-13 | 2 | 52.5 | 101.7 | 360.2 | 1589.8 | 8.6 |
| D-13 | 2 | 53 | 102.2 | 364.1 | 1585.9 | 9.4 |
| D-13 | 2 | 53.5 | 102.7 | 368.1 | 1581.9 | 9.1 |
| D-13 | 2 | 54 | 103.2 | 372.0 | 1578.0 | 9 |
| D-13 | 2 | 54.5 | 103.7 | 376.0 | 1574.0 | 8.9 |
| D-13 | 2 | 55 | 104.2 | 380.0 | 1570.0 | 8.1 |
| D-13 | 2 | 55.5 | 104.7 | 384.0 | 1566.0 | 7.9 |
| D-13 | 2 | 56 | 105.2 | 388.0 | 1562.0 | 8.7 |
| D-13 | 2 | 56.5 | 105.7 | 392.1 | 1557.9 | 9.3 |
| D-13 | 2 | 57 | 106.2 | 396.1 | 1553.9 | 9.9 |
| D-13 | 2 | 57.5 | 106.7 | 400.2 | 1549.8 | 9.2 |
| D-13 | 2 | 58 | 107.2 | 404.3 | 1545.7 | 10.3 |
| D-13 | 2 | 58.5 | 107.7 | 408.4 | 1541.6 | 9.9 |
| D-13 | 2 | 59 | 108.2 | 412.5 | 1537.5 | 9.5 |
| D-13 | 2 | 59.5 | 108.7 | 416.6 | 1533.4 | 9.4 |
| D-13 | 2 | 60 | 109.2 | 420.7 | 1529.3 | 9.3 |
| D-13 | 2 | 60.5 | 109.7 | 424.9 | 1525.1 | 9.3 |
| D-13 | 2 | 61 | 110.2 | 429.1 | 1520.9 | 8.7 |
| D-13 | 2 | 61.5 | 110.7 | 433.2 | 1516.8 | 9.3 |
| D-13 | 2 | 62 | 111.2 | 437.4 | 1512.6 | 8.9 |
| D-13 | 2 | 62.5 | 111.7 | 441.6 | 1508.4 | 8.7 |
| D-13 | 2 | 63 | 112.2 | 445.8 | 1504.2 | 9.3 |
| D-13 | 2 | 63.5 | 112.7 | 450.1 | 1499.9 | 9.3 |
| D-13 | 2 | 64 | 113.2 | 454.3 | 1495.7 | 9.1 |
| D-13 | 2 | 64.5 | 113.7 | 458.6 | 1491.4 | 8.9 |
| D-13 | 2 | 65 | 114.2 | 462.8 | 1487.2 | 8.9 |
| D-13 | 2 | 65.5 | 114.7 | 467.1 | 1482.9 | 8.8 |
| D-13 | 2 | 66 | 115.2 | 471.4 | 1478.6 | 9.4 |
| D-13 | 2 | 66.5 | 115.7 | 475.7 | 1474.3 | 8.9 |
| D-13 | 2 | 67 | 116.2 | 480.0 | 1470.0 | 9 |
| D-13 | 2 | 67.5 | 116.7 | 484.4 | 1465.6 | 9 |
| D-13 | 2 | 68 | 117.2 | 488.7 | 1461.3 | 9.9 |
| D-13 | 2 | 68.5 | 117.7 | 493.1 | 1456.9 | 10.1 |
| D-13 | 2 | 69 | 118.2 | 497.5 | 1452.5 | 9.4 |
| D-13 | 2 | 69.5 | 118.7 | 501.8 | 1448.2 | 8.5 |
| D-13 | 2 | 70 | 119.2 | 506.2 | 1443.8 | 9.5 |
| D-13 | 2 | 70.5 | 119.7 | 510.7 | 1439.3 | 9.5 |
| D-13 | 2 | 71 | 120.2 | 515.1 | 1434.9 | 9.5 |
| D-13 | 2 | 71.5 | 120.7 | 519.5 | 1430.5 | 9.5 |
| D-13 | 2 | 72 | 121.2 | 524.0 | 1426.0 | 9.4 |

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| D-13 | 2 | 72.5 | 121.7 | 528.4 | 1421.6 | 9.5 |
| D-13 | 2 | 73 | 122.2 | 532.9 | 1417.1 | 10.4 |
| D-13 | 2 | 73.5 | 122.7 | 537.4 | 1412.6 | 9.3 |
| D-13 | 2 | 74 | 123.2 | 541.9 | 1408.1 | 7.7 |
| D-13 | 2 | 74.5 | 123.7 | 546.4 | 1403.6 | 8.1 |
| D-13 | 2 | 75 | 124.2 | 550.9 | 1399.1 | 8.7 |
| D-13 | 2 | 75.5 | 124.7 | 555.4 | 1394.6 | 8.5 |
| D-13 | 2 | 76 | 125.2 | 560.0 | 1390.0 | 9.5 |
| D-13 | 2 | 76.5 | 125.7 | 564.5 | 1385.5 | 9.7 |
| D-13 | 2 | 77 | 126.2 | 569.1 | 1380.9 | 9.1 |
| D-13 | 2 | 77.5 | 126.7 | 573.7 | 1376.3 | 9.4 |
| D-13 | 2 | 78 | 127.2 | 578.3 | 1371.7 | 9.9 |
| D-13 | 2 | 78.5 | 127.7 | 582.9 | 1367.1 | 9.8 |
| D-13 | 2 | 79 | 128.2 | 587.5 | 1362.5 | 8.9 |
| D-13 | 2 | 79.5 | 128.7 | 592.1 | 1357.9 | 9 |
| D-13 | 2 | 80 | 129.2 | 596.8 | 1353.2 | 9.3 |
| D-13 | 2 | 80.5 | 129.7 | 601.4 | 1348.6 | 8.5 |
| D-13 | 2 | 81 | 130.2 | 606.1 | 1343.9 | 9.3 |
| D-13 | 2 | 81.5 | 130.7 | 610.8 | 1339.2 | 9.3 |
| D-13 | 2 | 82 | 131.2 | 615.5 | 1334.5 | 9.6 |
| D-13 | 2 | 82.5 | 131.7 | 620.2 | 1329.8 | 9.8 |
| D-13 | 2 | 83 | 132.2 | 624.9 | 1325.1 | 10 |
| D-13 | 2 | 83.5 | 132.7 | 629.6 | 1320.4 | 10 |
| D-13 | 2 | 84 | 133.2 | 634.3 | 1315.7 | 10.5 |
| D-13 | 2 | 84.5 | 133.7 | 639.1 | 1310.9 | 11.1 |
| D-13 | 3 | 14 | 134 | 641.9 | 1308.1 | 10.7 |
| D-13 | 3 | 14.5 | 134.5 | 646.7 | 1303.3 | 10.5 |
| D-13 | 3 | 15 | 135 | 651.5 | 1298.5 | 10.9 |
| D-13 | 3 | 15.5 | 135.5 | 656.3 | 1293.7 | 11.7 |
| D-13 | 3 | 16 | 136 | 661.0 | 1289.0 | 11.7 |
| D-13 | 3 | 16.5 | 136.5 | 665.9 | 1284.1 | 10.8 |
| D-13 | 3 | 17 | 137 | 670.7 | 1279.3 | 11 |
| D-13 | 3 | 17.5 | 137.5 | 675.5 | 1274.5 | 10.1 |
| D-13 | 3 | 18 | 138 | 680.3 | 1269.7 | 10.1 |
| D-13 | 3 | 18.5 | 138.5 | 685.2 | 1264.8 | 11.3 |
| D-13 | 3 | 19 | 139 | 690.1 | 1259.9 | 10.5 |
| D-13 | 3 | 19.5 | 139.5 | 694.9 | 1255.1 | 10.6 |
| D-13 | 3 | 20 | 140 | 699.8 | 1250.2 | 10 |
| D-13 | 3 | 20.5 | 140.5 | 704.7 | 1245.3 | 9.6 |
| D-13 | 3 | 21 | 141 | 709.6 | 1240.4 | 9.7 |
| D-13 | 3 | 21.5 | 141.5 | 714.5 | 1235.5 | 9.8 |

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| D-13 | 3 | 22 | 142 | 719.5 | 1230.5 | 10 |
| D-13 | 3 | 22.5 | 142.5 | 724.4 | 1225.6 | 9.9 |
| D-13 | 3 | 23 | 143 | 729.3 | 1220.7 | 9.1 |
| D-13 | 3 | 23.5 | 143.5 | 734.3 | 1215.7 | 9.6 |
| D-13 | 3 | 24 | 144 | 739.3 | 1210.7 | 11.2 |
| D-13 | 3 | 24.5 | 144.5 | 744.2 | 1205.8 | 11.1 |
| D-13 | 3 | 25 | 145 | 749.2 | 1200.8 | 10.3 |
| D-13 | 3 | 25.5 | 145.5 | 754.2 | 1195.8 | 10.6 |
| D-13 | 3 | 26 | 146 | 759.2 | 1190.8 | 10.7 |
| D-13 | 3 | 26.5 | 146.5 | 764.3 | 1185.7 | 11.6 |
| D-13 | 3 | 27 | 147 | 769.3 | 1180.7 | 10.6 |
| D-13 | 3 | 27.5 | 147.5 | 774.3 | 1175.7 | 10.9 |
| D-13 | 3 | 28 | 148 | 779.4 | 1170.6 | 11.1 |
| D-13 | 3 | 28.5 | 148.5 | 784.4 | 1165.6 | 11.4 |
| D-13 | 3 | 29 | 149 | 789.5 | 1160.5 | 11.4 |
| D-13 | 3 | 29.5 | 149.5 | 794.6 | 1155.4 | 11.1 |
| D-13 | 3 | 30 | 150 | 799.7 | 1150.3 | 11.4 |
| D-13 | 3 | 30.5 | 150.5 | 804.8 | 1145.2 | 11.4 |
| D-13 | 3 | 31 | 151 | 809.9 | 1140.1 | 11.2 |
| D-13 | 3 | 31.5 | 151.5 | 815.0 | 1135.0 | 8.9 |
| D-13 | 3 | 32 | 152 | 820.1 | 1129.9 | 9.1 |
| D-13 | 3 | 32.5 | 152.5 | 825.3 | 1124.7 | 9.7 |
| D-13 | 3 | 33 | 153 | 830.4 | 1119.6 | 8.8 |
| D-13 | 3 | 33.5 | 153.5 | 835.6 | 1114.4 | 8.7 |
| D-13 | 3 | 34 | 154 | 840.7 | 1109.3 | 8.6 |
| D-13 | 3 | 34.5 | 154.5 | 845.9 | 1104.1 | 9.3 |
| D-13 | 3 | 35 | 155 | 851.1 | 1098.9 | 9.6 |
| D-13 | 3 | 35.5 | 155.5 | 856.3 | 1093.7 | 9.2 |
| D-13 | 3 | 36 | 156 | 861.5 | 1088.5 | 8.2 |
| D-13 | 3 | 36.5 | 156.5 | 866.7 | 1083.3 | 9.1 |
| D-13 | 3 | 37 | 157 | 871.9 | 1078.1 | 8.7 |
| D-13 | 3 | 37.5 | 157.5 | 877.2 | 1072.8 | 9.1 |
| D-13 | 3 | 38 | 158 | 882.4 | 1067.6 | 9.9 |
| D-13 | 3 | 38.5 | 158.5 | 887.7 | 1062.3 | 9.3 |
| D-13 | 3 | 39 | 159 | 892.9 | 1057.1 | 9.1 |
| D-13 | 3 | 39.5 | 159.5 | 898.2 | 1051.8 | 10 |
| D-13 | 3 | 40 | 160 | 903.5 | 1046.5 | 11.3 |
| D-13 | 3 | 40.5 | 160.5 | 908.8 | 1041.2 | 10.4 |
| D-13 | 3 | 41 | 161 | 914.0 | 1036.0 | 11.1 |
| D-13 | 3 | 41.5 | 161.5 | 919.4 | 1030.6 | 10.4 |
| D-13 | 3 | 42 | 162 | 924.7 | 1025.3 | 10.7 |

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| D-13 | 3 | 42.5 | 162.5 | 930.0 | 1020.0 | 11.1 |
| D-13 | 3 | 43 | 163 | 935.3 | 1014.7 | 11 |
| D-13 | 3 | 43.5 | 163.5 | 940.7 | 1009.3 | 12.4 |
| D-13 | 3 | 44 | 164 | 946.0 | 1004.0 | 11.6 |
| D-13 | 3 | 44.5 | 164.5 | 951.4 | 998.6 | 10.5 |
| D-13 | 3 | 45 | 165 | 956.7 | 993.3 | 11.5 |
| D-13 | 3 | 45.5 | 165.5 | 962.1 | 987.9 | 11.5 |
| D-13 | 3 | 46 | 166 | 967.5 | 982.5 | 11.1 |
| D-13 | 3 | 46.5 | 166.5 | 972.9 | 977.1 | 12.2 |
| D-13 | 3 | 47 | 167 | 978.3 | 971.7 | 11.5 |
| D-13 | 3 | 47.5 | 167.5 | 983.7 | 966.3 | 10.9 |
| D-13 | 3 | 48 | 168 | 989.1 | 960.9 | 10.3 |
| D-13 | 3 | 48.5 | 168.5 | 994.5 | 955.5 | 11.3 |
| D-13 | 3 | 49 | 169 | 1000.0 | 950.0 | 13 |
| D-13 | 3 | 49.5 | 169.5 | 1005.4 | 944.6 | 12.3 |
| D-13 | 3 | 50 | 170 | 1010.9 | 939.1 | 11.2 |
| D-13 | 3 | 50.5 | 170.5 | 1016.3 | 933.7 | 11.1 |
| D-13 | 3 | 51 | 171 | 1021.8 | 928.2 | 11.5 |
| D-13 | 3 | 51.5 | 171.5 | 1027.3 | 922.7 | 9.1 |
| D-13 | 3 | 52 | 172 | 1032.8 | 917.2 | 8.6 |
| D-13 | 3 | 52.5 | 172.5 | 1038.3 | 911.7 | 11.7 |
| D-13 | 3 | 53 | 173 | 1043.8 | 906.2 | 12.3 |
| D-13 | 3 | 53.5 | 173.5 | 1049.3 | 900.7 | 11.8 |
| D-13 | 3 | 54 | 174 | 1054.8 | 895.2 | 12.6 |
| D-13 | 3 | 54.5 | 174.5 | 1060.3 | 889.7 | 12.1 |
| D-13 | 3 | 55 | 175 | 1065.8 | 884.2 | 11.7 |
| D-13 | 3 | 55.5 | 175.5 | 1071.4 | 878.6 | 11 |
| D-13 | 3 | 56 | 176 | 1076.9 | 873.1 | 11.3 |
| D-13 | 3 | 56.5 | 176.5 | 1082.5 | 867.5 | 10.8 |
| D-13 | 3 | 57 | 177 | 1088.1 | 861.9 | 10.6 |
| D-13 | 3 | 57.5 | 177.5 | 1093.6 | 856.4 | 10.1 |
| D-13 | 3 | 58 | 178 | 1099.2 | 850.8 | 10.1 |
| D-13 | 3 | 58.5 | 178.5 | 1104.8 | 845.2 | 11 |
| D-13 | 3 | 59 | 179 | 1110.4 | 839.6 | 11.2 |
| D-13 | 3 | 59.5 | 179.5 | 1116.0 | 834.0 | 11.7 |
| D-13 | 3 | 60 | 180 | 1121.6 | 828.4 | 10.8 |
| D-13 | 3 | 60.5 | 180.5 | 1127.2 | 822.8 | 10.8 |
| D-13 | 3 | 61 | 181 | 1132.9 | 817.1 | 11.3 |
| D-13 | 3 | 61.5 | 181.5 | 1138.5 | 811.5 | 11.2 |
| D-13 | 3 | 62 | 182 | 1144.1 | 805.9 | 10.5 |
| D-13 | 3 | 62.5 | 182.5 | 1149.8 | 800.2 | 10.5 |

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|---|---|---|---|---|---|---|
| D-13 | 3 | 63 | 183 | 1155.4 | 794.6 | 10.5 |
| D-13 | 3 | 63.5 | 183.5 | 1161.1 | 788.9 | 10.3 |
| D-13 | 3 | 64 | 184 | 1166.8 | 783.2 | 10.6 |
| D-13 | 3 | 64.5 | 184.5 | 1172.4 | 777.6 | 11 |
| D-13 | 3 | 65 | 185 | 1178.1 | 771.9 | 11.1 |
| D-13 | 3 | 65.5 | 185.5 | 1183.8 | 766.2 | 11.1 |
| D-13 | 3 | 66 | 186 | 1189.5 | 760.5 | 11.3 |
| D-13 | 3 | 66.5 | 186.5 | 1195.2 | 754.8 | 12 |
| D-13 | 3 | 67 | 187 | 1200.9 | 749.1 | 11 |
| D-13 | 3 | 67.5 | 187.5 | 1206.7 | 743.3 | 11.4 |
| D-13 | 3 | 68 | 188 | 1212.4 | 737.6 | 11.1 |
| D-13 | 3 | 68.5 | 188.5 | 1218.1 | 731.9 | 10.4 |
| D-13 | 3 | 69 | 189 | 1223.9 | 726.1 | 10.4 |
| D-13 | 3 | 69.5 | 189.5 | 1229.6 | 720.4 | 10.5 |
| D-13 | 3 | 70 | 190 | 1235.4 | 714.6 | 11.2 |
| D-13 | 3 | 70.5 | 190.5 | 1241.1 | 708.9 | 12.2 |
| D-13 | 3 | 71 | 191 | 1246.9 | 703.1 | 11.6 |
| D-13 | 3 | 71.5 | 191.5 | 1252.7 | 697.3 | 11.7 |
| D-13 | 3 | 72 | 192 | 1258.4 | 691.6 | 12 |
| D-13 | 3 | 72.5 | 192.5 | 1264.2 | 685.8 | 12.2 |
| D-13 | 3 | 73 | 193 | 1270.0 | 680.0 | 11.2 |
| D-13 | 3 | 73.5 | 193.5 | 1275.8 | 674.2 | 10.5 |
| D-13 | 3 | 74 | 194 | 1281.6 | 668.4 | 10.8 |
| D-13 | 3 | 74.5 | 194.5 | 1287.5 | 662.5 | 10.7 |
| D-13 | 3 | 75 | 195 | 1293.3 | 656.7 | 10.4 |
| D-13 | 3 | 75.5 | 195.5 | 1299.1 | 650.9 | 10.7 |
| D-13 | 3 | 76 | 196 | 1304.9 | 645.1 | 9.9 |
| D-13 | 3 | 76.5 | 196.5 | 1310.8 | 639.2 | 9.7 |
| D-13 | 3 | 77 | 197 | 1316.6 | 633.4 | 9.6 |
| D-13 | 3 | 77.5 | 197.5 | 1322.5 | 627.5 | 9.5 |
| D-13 | 3 | 78 | 198 | 1328.4 | 621.6 | 10.1 |
| D-13 | 3 | 78.5 | 198.5 | 1334.2 | 615.8 | 10.3 |
| D-13 | 3 | 79 | 199 | 1340.1 | 609.9 | 11.4 |
| D-13 | 3 | 79.5 | 199.5 | 1346.0 | 604.0 | 12.6 |
| D-13 | 3 | 80 | 200 | 1351.9 | 598.1 | 11 |
| D-13 | 3 | 80.5 | 200.5 | 1357.8 | 592.2 | 10.8 |
| D-13 | 3 | 81 | 201 | 1363.7 | 586.3 | 10.8 |
| D-13 | 3 | 81.5 | 201.5 | 1369.6 | 580.4 | 11.5 |
| D-13 | 3 | 82 | 202 | 1375.5 | 574.5 | 11.8 |
| D-13 | 3 | 82.5 | 202.5 | 1381.4 | 568.6 | 13.2 |
| D-13 | 3 | 83 | 203 | 1387.3 | 562.7 | 11.8 |

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| D-13 | 3 | 83.5 | 203.5 | 1393.2 | 556.8 | 11.7 |
| D-13 | 3 | 84 | 204 | 1399.2 | 550.8 | 12 |
| D-13 | 3 | 84.5 | 204.5 | 1405.1 | 544.9 | 13.1 |
| D-13 | 3 | 85 | 205 | 1411.1 | 538.9 | 13.7 |
| D-13 | 3 | 85.5 | 205.5 | 1417.0 | 533.0 | 12 |
| D-13 | 3 | 86 | 206 | 1423.0 | 527.0 | 11.8 |
| D-13 | 3 | 86.5 | 206.5 | 1428.9 | 521.1 | 11.2 |
| D-13 | 3 | 87 | 207 | 1434.9 | 515.1 | 12.1 |
| D-13 | 3 | 87.5 | 207.5 | 1440.9 | 509.1 | 12 |
| D-13 | 3 | 88 | 208 | 1446.9 | 503.1 | 11 |
| D-13 | 3 | 88.5 | 208.5 | 1452.9 | 497.1 | 11.8 |
| D-13 | 4 | 19.5 | 208.7 | 1455.3 | 494.7 | 11.8 |
| D-13 | 4 | 20 | 209.2 | 1461.2 | 488.8 | 11.7 |
| D-13 | 4 | 20.5 | 209.7 | 1467.2 | 482.8 | 12 |
| D-13 | 4 | 21 | 210.2 | 1473.3 | 476.7 | 11.2 |
| D-13 | 4 | 21.5 | 210.7 | 1479.3 | 470.7 | 12.2 |
| D-13 | 4 | 22 | 211.2 | 1485.3 | 464.7 | 11.1 |
| D-13 | 4 | 22.5 | 211.7 | 1491.3 | 458.7 | 12 |
| D-13 | 4 | 23 | 212.2 | 1497.3 | 452.7 | 12.3 |
| D-13 | 4 | 23.5 | 212.7 | 1503.4 | 446.6 | 11.7 |
| D-13 | 4 | 24 | 213.2 | 1509.4 | 440.6 | 13.4 |
| D-13 | 4 | 24.5 | 213.7 | 1515.5 | 434.5 | 12.8 |
| D-13 | 4 | 25 | 214.2 | 1521.5 | 428.5 | 13.1 |
| D-13 | 4 | 25.5 | 214.7 | 1527.6 | 422.4 | 12.2 |
| D-13 | 4 | 26 | 215.2 | 1533.6 | 416.4 | 12.8 |
| D-13 | 4 | 26.5 | 215.7 | 1539.7 | 410.3 | 13.4 |
| D-13 | 4 | 27 | 216.2 | 1545.8 | 404.2 | 13.2 |
| D-13 | 4 | 27.5 | 216.7 | 1551.9 | 398.1 | 12.8 |
| D-13 | 4 | 28 | 217.2 | 1557.9 | 392.1 | 11.9 |
| D-13 | 4 | 28.5 | 217.7 | 1564.0 | 386.0 | 11.4 |
| D-13 | 4 | 29 | 218.2 | 1570.1 | 379.9 | 11.7 |
| D-13 | 4 | 29.5 | 218.7 | 1576.2 | 373.8 | 12 |
| D-13 | 4 | 30 | 219.2 | 1582.3 | 367.7 | 12.2 |
| D-13 | 4 | 30.5 | 219.7 | 1588.4 | 361.6 | 11.3 |
| D-13 | 4 | 31 | 220.2 | 1594.5 | 355.5 | 11.1 |
| D-13 | 4 | 31.5 | 220.7 | 1600.7 | 349.3 | 11.2 |
| D-13 | 4 | 32 | 221.2 | 1606.8 | 343.2 | 11.2 |
| D-13 | 4 | 32.5 | 221.7 | 1612.9 | 337.1 | 11.7 |
| D-13 | 4 | 33 | 222.2 | 1619.1 | 330.9 | 11.4 |
| D-13 | 4 | 33.5 | 222.7 | 1625.2 | 324.8 | 13.3 |
| D-13 | 4 | 34 | 223.2 | 1631.3 | 318.7 | 13.8 |

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| D-13 | 4 | 34.5 | 223.7 | 1637.5 | 312.5 | 12 |
| D-13 | 4 | 35 | 224.2 | 1643.6 | 306.4 | 11.2 |
| D-13 | 4 | 35.5 | 224.7 | 1649.8 | 300.2 | 11.2 |
| D-13 | 4 | 36 | 225.2 | 1656.0 | 294.0 | 11.2 |
| D-13 | 4 | 36.5 | 225.7 | 1662.1 | 287.9 | 12.5 |
| D-13 | 4 | 37 | 226.2 | 1668.3 | 281.7 | 10.7 |
| D-13 | 4 | 37.5 | 226.7 | 1674.5 | 275.5 | 10.3 |
| D-13 | 4 | 38 | 227.2 | 1680.7 | 269.3 | 10.4 |
| D-13 | 4 | 38.5 | 227.7 | 1686.9 | 263.1 | 10.8 |
| D-13 | 4 | 39 | 228.2 | 1693.0 | 257.0 | 11 |
| D-13 | 4 | 39.5 | 228.7 | 1699.2 | 250.8 | 10.8 |
| D-13 | 4 | 40 | 229.2 | 1705.4 | 244.6 | 10.5 |
| D-13 | 4 | 40.5 | 229.7 | 1711.6 | 238.4 | 10.9 |
| D-13 | 4 | 41 | 230.2 | 1717.9 | 232.1 | 11.1 |
| D-13 | 4 | 41.5 | 230.7 | 1724.1 | 225.9 | 11 |
| D-13 | 4 | 42 | 231.2 | 1730.3 | 219.7 | 10.8 |
| D-13 | 4 | 42.5 | 231.7 | 1736.5 | 213.5 | 10.6 |
| D-13 | 4 | 43 | 232.2 | 1742.7 | 207.3 | 10.5 |
| D-13 | 4 | 43.5 | 232.7 | 1749.0 | 201.0 | 10.9 |
| D-13 | 4 | 44 | 233.2 | 1755.2 | 194.8 | 11.6 |
| D-13 | 4 | 44.5 | 233.7 | 1761.5 | 188.5 | 11.2 |
| D-13 | 4 | 45 | 234.2 | 1767.7 | 182.3 | 10.3 |
| D-13 | 4 | 45.5 | 234.7 | 1774.0 | 176.0 | 10.9 |
| D-13 | 4 | 46 | 235.2 | 1780.2 | 169.8 | 10.7 |
| D-13 | 4 | 46.5 | 235.7 | 1786.5 | 163.5 | 11.4 |
| D-13 | 4 | 47 | 236.2 | 1792.7 | 157.3 | 12.1 |
| D-13 | 4 | 47.5 | 236.7 | 1799.0 | 151.0 | 11.4 |
| D-13 | 4 | 48 | 237.2 | 1805.3 | 144.7 | 10.9 |
| D-13 | 4 | 48.5 | 237.7 | 1811.5 | 138.5 | 11 |
| D-13 | 4 | 49 | 238.2 | 1817.8 | 132.2 | 11.3 |
| D-13 | 4 | 49.5 | 238.7 | 1824.1 | 125.9 | 10.9 |
| D-13 | 4 | 50 | 239.2 | 1830.4 | 119.6 | 10.8 |
| D-13 | 4 | 50.5 | 239.7 | 1836.7 | 113.3 | 11.6 |
| D-13 | 4 | 51 | 240.2 | 1843.0 | 107.0 | 11.8 |
| D-13 | 4 | 51.5 | 240.7 | 1849.3 | 100.7 | 10.6 |
| D-13 | 4 | 52 | 241.2 | 1855.6 | 94.4 | 10.9 |
| D-13 | 4 | 52.5 | 241.7 | 1861.9 | 88.1 | 10.2 |
| D-13 | 4 | 53 | 242.2 | 1868.2 | 81.8 | 9.9 |
| D-13 | 4 | 53.5 | 242.7 | 1874.5 | 75.5 | 10.4 |
| D-13 | 4 | 54 | 243.2 | 1880.9 | 69.1 | 11 |
| D-13 | 4 | 54.5 | 243.7 | 1887.2 | 62.8 | 10.6 |

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| D-13 | 4 | 55 | 244.2 | 1893.5 | 56.5 | 11.2 |
| D-13 | 4 | 55.5 | 244.7 | 1899.8 | 50.2 | 11.8 |
| D-13 | 4 | 56 | 245.2 | 1906.2 | 43.8 | 10.5 |
| D-13 | 4 | 56.5 | 245.7 | 1912.5 | 37.5 | 10.7 |
| D-13 | 4 | 57 | 246.2 | 1918.9 | 31.1 | 10.2 |
| D-13 | 4 | 57.5 | 246.7 | 1925.2 | 24.8 | 11.3 |
| D-13 | 4 | 58 | 247.2 | 1931.6 | 18.4 | 10.9 |
| D-13 | 4 | 58.5 | 247.7 | 1937.9 | 12.1 | 10.9 |
| D-13 | 4 | 59 | 248.2 | 1944.3 | 5.7 | 10.5 |
| D-13 | 4 | 59.5 | 248.7 | 1950.6 | -0.6 | 9.9 |
| D-13 | 4 | 60 | 249.2 | 1957.0 | -7.0 | 10.7 |
| D-13 | 4 | 60.5 | 249.7 | 1963.4 | -13.4 | 11.2 |
| D-13 | 4 | 61 | 250.2 | 1969.8 | -19.8 | 9.9 |
| D-13 | 4 | 61.5 | 250.7 | 1976.1 | -26.1 | 10.5 |
| D-13 | 4 | 62 | 251.2 | 1982.5 | -32.5 | 11.6 |
| D-13 | 4 | 62.5 | 251.7 | 1988.9 | -38.9 | 11 |
| D-13 | 4 | 63 | 252.2 | 1995.3 | -45.3 | 11.6 |
| D-13 | 4 | 63.5 | 252.7 | 2001.7 | -51.7 | 10.6 |
| D-13 | 4 | 64 | 253.2 | 2008.1 | -58.1 | 9.9 |
| D-13 | 4 | 64.5 | 253.7 | 2014.5 | -64.5 | 11.1 |
| D-13 | 4 | 65 | 254.2 | 2020.9 | -70.9 | 11 |
| D-13 | 4 | 65.5 | 254.7 | 2027.3 | -77.3 | 10.5 |
| D-13 | 4 | 66 | 255.2 | 2033.7 | -83.7 | 10.9 |
| D-13 | 4 | 66.5 | 255.7 | 2040.1 | -90.1 | 11.2 |
| D-13 | 4 | 67 | 256.2 | 2046.5 | -96.5 | 11.8 |
| D-13 | 4 | 67.5 | 256.7 | 2052.9 | -102.9 | 11.8 |
| D-13 | 4 | 68 | 257.2 | 2059.4 | -109.4 | 12.3 |
| D-13 | 4 | 68.5 | 257.7 | 2065.8 | -115.8 | 11.2 |
| D-13 | 4 | 69 | 258.2 | 2072.2 | -122.2 | 11 |
| D-13 | 4 | 69.5 | 258.7 | 2078.7 | -128.7 | 10.6 |
| D-13 | 4 | 70 | 259.2 | 2085.1 | -135.1 | 11.4 |
| D-13 | 4 | 70.5 | 259.7 | 2091.5 | -141.5 | 11.1 |
| D-13 | 4 | 71 | 260.2 | 2098.0 | -148.0 | 10.9 |
| D-13 | 4 | 71.5 | 260.7 | 2104.4 | -154.4 | 12 |
| D-13 | 4 | 72 | 261.2 | 2110.9 | -160.9 | 11.4 |
| D-13 | 4 | 72.5 | 261.7 | 2117.3 | -167.3 | 11.4 |
| D-13 | 4 | 73 | 262.2 | 2123.8 | -173.8 | 10.8 |
| D-13 | 4 | 73.5 | 262.7 | 2130.2 | -180.2 | 10.7 |
| D-13 | 4 | 74 | 263.2 | 2136.7 | -186.7 | 11.1 |
| D-13 | 4 | 74.5 | 263.7 | 2143.2 | -193.2 | 11.5 |
| D-13 | 4 | 75 | 264.2 | 2149.6 | -199.6 | 10.4 |

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| D-13 | 4 | 75.5 | 264.7 | 2156.1 | -206.1 | 11.3 |
| D-13 | 4 | 76 | 265.2 | 2162.6 | -212.6 | 11 |
| D-13 | 4 | 76.5 | 265.7 | 2169.1 | -219.1 | 11.1 |
| D-13 | 4 | 77 | 266.2 | 2175.5 | -225.5 | 11.6 |
| D-13 | 4 | 77.5 | 266.7 | 2182.0 | -232.0 | 11.5 |
| D-13 | 4 | 78 | 267.2 | 2188.5 | -238.5 | 11.7 |
| D-13 | 4 | 78.5 | 267.7 | 2195.0 | -245.0 | 12.4 |
| D-13 | 4 | 79 | 268.2 | 2201.5 | -251.5 | 12 |
| D-13 | 4 | 79.5 | 268.7 | 2208.0 | -258.0 | 12.7 |
| D-13 | 4 | 80 | 269.2 | 2214.5 | -264.5 | 12.1 |
| D-13 | 4 | 80.5 | 269.7 | 2221.0 | -271.0 | 12.9 |
| D-13 | 4 | 81 | 270.2 | 2227.5 | -277.5 | 11.7 |
| D-13 | 4 | 81.5 | 270.7 | 2234.0 | -284.0 | 13.4 |
| D-13 | 4 | 82 | 271.2 | 2240.5 | -290.5 | 11.8 |
| D-13 | 4 | 82.5 | 271.7 | 2247.0 | -297.0 | 11.6 |
| D-13 | 4 | 83 | 272.2 | 2253.5 | -303.5 | 12.6 |
| D-13 | 4 | 83.5 | 272.7 | 2260.1 | -310.1 | 13 |
| D-13 | 4 | 84 | 273.2 | 2266.6 | -316.6 | 12 |
| D-13 | 4 | 84.5 | 273.7 | 2273.1 | -323.1 | 12.1 |
| D-13 | 4 | 85 | 274.2 | 2279.6 | -329.6 | 13.7 |
| D-13 | 4 | 85.5 | 274.7 | 2286.2 | -336.2 | 13.7 |
| D-13 | 4 | 86 | 275.2 | 2292.7 | -342.7 | 14.3 |
| D-13 | 4 | 86.5 | 275.7 | 2299.2 | -349.2 | 13.5 |
| D-13 | 4 | 87 | 276.2 | 2305.8 | -355.8 | 13.7 |
| D-13 | 4 | 87.5 | 276.7 | 2312.3 | -362.3 | 14.1 |
| D-13 | 4 | 88 | 277.2 | 2318.9 | -368.9 | 12 |
| D-13 | 5 | 20 | 277.5 | 2322.8 | -372.8 | 11.9 |
| D-13 | 5 | 20.5 | 278 | 2329.3 | -379.3 | 11.1 |
| D-13 | 5 | 21 | 278.5 | 2335.9 | -385.9 | 11.9 |
| D-13 | 5 | 21.5 | 279 | 2342.4 | -392.4 | 12.4 |
| D-13 | 5 | 22 | 279.5 | 2349.0 | -399.0 | 12.8 |
| D-13 | 5 | 22.5 | 280 | 2355.5 | -405.5 | 12.3 |
| D-13 | 5 | 23 | 280.5 | 2362.1 | -412.1 | 12.8 |
| D-13 | 5 | 23.5 | 281 | 2368.7 | -418.7 | 11.8 |
| D-13 | 5 | 24 | 281.5 | 2375.2 | -425.2 | 12.2 |
| D-13 | 5 | 24.5 | 282 | 2381.8 | -431.8 | 12.8 |
| D-13 | 5 | 25 | 282.5 | 2388.4 | -438.4 | 11.9 |
| D-13 | 5 | 25.5 | 283 | 2395.0 | -445.0 | 12.5 |
| D-13 | 5 | 26 | 283.5 | 2401.5 | -451.5 | 12.3 |
| D-13 | 5 | 26.5 | 284 | 2408.1 | -458.1 | 12.6 |
| D-13 | 5 | 27 | 284.5 | 2414.7 | -464.7 | 12.2 |

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| D-13 | 5 | 27.5 | 285 | 2421.3 | -471.3 | 12.3 |
| D-13 | 5 | 28 | 285.5 | 2427.9 | -477.9 | 12.9 |
| D-13 | 5 | 28.5 | 286 | 2434.5 | -484.5 | 13.2 |
| D-13 | 5 | 29 | 286.5 | 2441.0 | -491.0 | 12.6 |
| D-13 | 5 | 29.5 | 287 | 2447.6 | -497.6 | 12.2 |
| D-13 | 5 | 30 | 287.5 | 2454.2 | -504.2 | 12.4 |
| D-13 | 5 | 30.5 | 288 | 2460.8 | -510.8 | 12.1 |
| D-13 | 5 | 31 | 288.5 | 2467.4 | -517.4 | 12.4 |
| D-13 | 5 | 31.5 | 289 | 2474.0 | -524.0 | 12.2 |
| D-13 | 5 | 32 | 289.5 | 2480.6 | -530.6 | 12.4 |
| D-13 | 5 | 32.5 | 290 | 2487.3 | -537.3 | 12.8 |
| D-13 | 5 | 33 | 290.5 | 2493.9 | -543.9 | 12.8 |
| D-13 | 5 | 33.5 | 291 | 2500.5 | -550.5 | 12.3 |
| D-13 | 5 | 34 | 291.5 | 2507.1 | -557.1 | 12.9 |
| D-13 | 5 | 34.5 | 292 | 2513.7 | -563.7 | 12.4 |
| D-13 | 5 | 35 | 292.5 | 2520.3 | -570.3 | 11.2 |
| D-13 | 5 | 35.5 | 293 | 2527.0 | -577.0 | 11.6 |
| D-13 | 5 | 36 | 293.5 | 2533.6 | -583.6 | 11.7 |
| D-13 | 5 | 36.5 | 294 | 2540.2 | -590.2 | 12.3 |
| D-13 | 5 | 37 | 294.5 | 2546.8 | -596.8 | 11.7 |
| D-13 | 5 | 37.5 | 295 | 2553.5 | -603.5 | 12.5 |
| D-13 | 5 | 38 | 295.5 | 2560.1 | -610.1 | 11.6 |
| D-13 | 5 | 38.5 | 296 | 2566.7 | -616.7 | 11.1 |
| D-13 | 5 | 39 | 296.5 | 2573.4 | -623.4 | 11.4 |
| D-13 | 5 | 39.5 | 297 | 2580.0 | -630.0 | 11.3 |
| D-13 | 5 | 40 | 297.5 | 2586.6 | -636.6 | 12.4 |
| D-13 | 5 | 40.5 | 298 | 2593.3 | -643.3 | 12.6 |
| D-13 | 5 | 41 | 298.5 | 2599.9 | -649.9 | 13 |
| D-13 | 5 | 41.5 | 299 | 2606.6 | -656.6 | 12 |
| D-13 | 5 | 42 | 299.5 | 2613.2 | -663.2 | 12 |
| D-13 | 5 | 42.5 | 300 | 2619.9 | -669.9 | 12.4 |
| D-13 | 5 | 43 | 300.5 | 2626.5 | -676.5 | 12.2 |
| D-13 | 5 | 43.5 | 301 | 2633.2 | -683.2 | 13 |
| D-13 | 5 | 44 | 301.5 | 2639.9 | -689.9 | 13.1 |
| D-13 | 5 | 44.5 | 302 | 2646.5 | -696.5 | 12.9 |
| D-13 | 5 | 45 | 302.5 | 2653.2 | -703.2 | 12.8 |
| D-13 | 5 | 45.5 | 303 | 2659.9 | -709.9 | 13.4 |
| D-13 | 5 | 46 | 303.5 | 2666.5 | -716.5 | 13.4 |
| D-13 | 5 | 46.5 | 304 | 2673.2 | -723.2 | 13 |
| D-13 | 5 | 47 | 304.5 | 2679.9 | -729.9 | 13.2 |
| D-13 | 5 | 47.5 | 305 | 2686.5 | -736.5 | 13 |

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| D-13 | 5 | 48 | 305.5 | 2693.2 | -743.2 | 12.2 |
| D-13 | 5 | 48.5 | 306 | 2699.9 | -749.9 | 12.5 |
| D-13 | 5 | 49 | 306.5 | 2706.6 | -756.6 | 12 |
| D-13 | 5 | 49.5 | 307 | 2713.2 | -763.2 | 12.2 |
| D-13 | 5 | 50 | 307.5 | 2719.9 | -769.9 | 13.4 |
| D-13 | 5 | 50.5 | 308 | 2726.6 | -776.6 | 13.9 |
| D-13 | 5 | 51 | 308.5 | 2733.3 | -783.3 | 12.9 |
| D-13 | 5 | 51.5 | 309 | 2740.0 | -790.0 | 13 |
| D-13 | 5 | 52 | 309.5 | 2746.7 | -796.7 | 13.7 |
| D-13 | 5 | 52.5 | 310 | 2753.4 | -803.4 | 13.8 |
| D-13 | 5 | 53 | 310.5 | 2760.1 | -810.1 | 13.1 |
| D-13 | 5 | 53.5 | 311 | 2766.8 | -816.8 | 12.8 |
| D-13 | 5 | 54 | 311.5 | 2773.5 | -823.5 | 12.4 |
| D-13 | 5 | 54.5 | 312 | 2780.2 | -830.2 | 12.6 |
| D-13 | 5 | 55 | 312.5 | 2786.9 | -836.9 | 12.8 |
| D-13 | 5 | 55.5 | 313 | 2793.6 | -843.6 | 13.4 |
| D-13 | 5 | 56 | 313.5 | 2800.3 | -850.3 | 13.1 |
| D-13 | 5 | 56.5 | 314 | 2807.0 | -857.0 | 12.9 |
| D-13 | 5 | 57 | 314.5 | 2813.7 | -863.7 | 14.2 |
| D-13 | 5 | 57.5 | 315 | 2820.4 | -870.4 | 14.8 |
| D-13 | 5 | 58 | 315.5 | 2827.1 | -877.1 | 13.8 |
| D-13 | 5 | 58.5 | 316 | 2833.8 | -883.8 | 13 |
| D-13 | 5 | 59 | 316.5 | 2840.6 | -890.6 | 14 |
| D-13 | 5 | 59.5 | 317 | 2847.3 | -897.3 | 14.6 |
| D-13 | 5 | 60 | 317.5 | 2854.0 | -904.0 | 14 |
| D-13 | 5 | 60.5 | 318 | 2860.7 | -910.7 | 13.4 |
| D-13 | 5 | 61 | 318.5 | 2867.5 | -917.5 | 13.5 |
| D-13 | 5 | 61.5 | 319 | 2874.2 | -924.2 | 13.7 |
| D-13 | 5 | 62 | 319.5 | 2880.9 | -930.9 | 14.3 |
| D-13 | 5 | 62.5 | 320 | 2887.6 | -937.6 | 14.4 |
| D-13 | 5 | 63 | 320.5 | 2894.4 | -944.4 | 14 |
| D-13 | 5 | 63.5 | 321 | 2901.1 | -951.1 | 12.8 |
| D-13 | 5 | 64 | 321.5 | 2907.8 | -957.8 | 12.3 |
| D-13 | 5 | 64.5 | 322 | 2914.6 | -964.6 | 13.8 |
| D-13 | 5 | 65 | 322.5 | 2921.3 | -971.3 | 13.2 |
| D-13 | 5 | 65.5 | 323 | 2928.1 | -978.1 | 13.8 |
| D-13 | 5 | 66 | 323.5 | 2934.8 | -984.8 | 13.9 |
| D-13 | 5 | 66.5 | 324 | 2941.6 | -991.6 | 13.3 |
| D-13 | 5 | 67 | 324.5 | 2948.3 | -998.3 | 13.2 |
| D-13 | 5 | 67.5 | 325 | 2955.0 | -1005.0 | 13.3 |
| D-13 | 5 | 68 | 325.5 | 2961.8 | -1011.8 | 13 |

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| D-13 | 5 | 68.5 | 326 | 2968.6 | -1018.6 | 12.8 |
| D-13 | 5 | 69 | 326.5 | 2975.3 | -1025.3 | 12.2 |
| D-13 | 5 | 69.5 | 327 | 2982.1 | -1032.1 | 12.2 |
| D-13 | 5 | 70 | 327.5 | 2988.8 | -1038.8 | 12.4 |
| D-13 | 5 | 70.5 | 328 | 2995.6 | -1045.6 | 12.8 |
| D-13 | 5 | 71 | 328.5 | 3002.3 | -1052.3 | 13.1 |
| D-13 | 5 | 71.5 | 329 | 3009.1 | -1059.1 | 12.8 |
| D-13 | 5 | 72 | 329.5 | 3015.9 | -1065.9 | 12.9 |
| D-13 | 5 | 72.5 | 330 | 3022.6 | -1072.6 | 13.2 |
| D-13 | 5 | 73 | 330.5 | 3029.4 | -1079.4 | 14 |
| D-13 | 5 | 73.5 | 331 | 3036.2 | -1086.2 | 14.5 |
| D-13 | 5 | 74 | 331.5 | 3042.9 | -1092.9 | 14.3 |
| D-13 | 5 | 74.5 | 332 | 3049.7 | -1099.7 | 13.4 |
| D-13 | 5 | 75 | 332.5 | 3056.5 | -1106.5 | 13.2 |
| D-13 | 5 | 75.5 | 333 | 3063.3 | -1113.3 | 13.2 |
| D-13 | 5 | 76 | 333.5 | 3070.0 | -1120.0 | 13.3 |
| D-13 | 5 | 76.5 | 334 | 3076.8 | -1126.8 | 13.6 |
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| D-13 | 5 | 77.5 | 335 | 3090.4 | -1140.4 | 12.7 |
| D-13 | 5 | 78 | 335.5 | 3097.2 | -1147.2 | 13.3 |
| D-13 | 5 | 78.5 | 336 | 3103.9 | -1153.9 | 13.1 |
| D-13 | 5 | 79 | 336.5 | 3110.7 | -1160.7 | 12.8 |
| D-13 | 5 | 79.5 | 337 | 3117.5 | -1167.5 | 13.2 |
| D-13 | 5 | 80 | 337.5 | 3124.3 | -1174.3 | 13.5 |
| D-13 | 5 | 80.5 | 338 | 3131.1 | -1181.1 | 12.6 |
| D-13 | 5 | 81 | 338.5 | 3137.9 | -1187.9 | 12.4 |
| D-13 | 5 | 81.5 | 339 | 3144.7 | -1194.7 | 13.6 |
| D-13 | 5 | 82 | 339.5 | 3151.5 | -1201.5 | 13.6 |
| D-13 | 5 | 82.5 | 340 | 3158.3 | -1208.3 | 13.7 |
| D-13 | 12 | 34.5 | 340.7 | 3167.8 | -1217.8 | 14.9 |
| D-13 | 12 | 35 | 341.2 | 3174.6 | -1224.6 | 15.1 |
| D-13 | 12 | 35.5 | 341.7 | 3181.4 | -1231.4 | 14.4 |
| D-13 | 12 | 36 | 342.2 | 3188.2 | -1238.2 | 13.8 |
| D-13 | 12 | 36.5 | 342.7 | 3195.0 | -1245.0 | 13.4 |
| D-13 | 12 | 37 | 343.2 | 3201.8 | -1251.8 | 13.6 |
| D-13 | 12 | 37.5 | 343.7 | 3208.7 | -1258.7 | 14.4 |
| D-13 | 12 | 38 | 344.2 | 3215.5 | -1265.5 | 14 |
| D-13 | 12 | 38.5 | 344.7 | 3222.3 | -1272.3 | 13 |
| D-13 | 12 | 39 | 345.2 | 3229.1 | -1279.1 | 14.2 |
| D-13 | 12 | 39.5 | 345.7 | 3235.9 | -1285.9 | 15.1 |
| D-13 | 12 | 40 | 346.2 | 3242.7 | -1292.7 | 14.4 |

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| D-13 | 12 | 40.5 | 346.7 | 3249.6 | -1299.6 | 14.9 |
| D-13 | 12 | 41 | 347.2 | 3256.4 | -1306.4 | 15.5 |
| D-13 | 12 | 41.5 | 347.7 | 3263.2 | -1313.2 | 13.8 |
| D-13 | 12 | 42 | 348.2 | 3270.0 | -1320.0 | 13.2 |
| D-13 | 12 | 42.5 | 348.7 | 3276.9 | -1326.9 | 13 |
| D-13 | 12 | 43 | 349.2 | 3283.7 | -1333.7 | 13.8 |
| D-13 | 12 | 43.5 | 349.7 | 3290.5 | -1340.5 | 13 |
| D-13 | 12 | 44 | 350.2 | 3297.4 | -1347.4 | 12.3 |
| D-13 | 12 | 44.5 | 350.7 | 3304.2 | -1354.2 | 13 |
| D-13 | 12 | 45 | 351.2 | 3311.0 | -1361.0 | 13.3 |
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| D-13 | 12 | 46 | 352.2 | 3324.7 | -1374.7 | 13.6 |
| D-13 | 12 | 46.5 | 352.7 | 3331.5 | -1381.5 | 14.5 |
| D-13 | 12 | 47 | 353.2 | 3338.4 | -1388.4 | 13.2 |
| D-13 | 12 | 47.5 | 353.7 | 3345.2 | -1395.2 | 12.5 |
| D-13 | 12 | 48 | 354.2 | 3352.1 | -1402.1 | 13.2 |
| D-13 | 12 | 48.5 | 354.7 | 3358.9 | -1408.9 | 13.3 |
| D-13 | 12 | 49 | 355.2 | 3365.8 | -1415.8 | 13.2 |
| D-13 | 12 | 49.5 | 355.7 | 3372.6 | -1422.6 | 13.8 |
| D-13 | 12 | 50 | 356.2 | 3379.5 | -1429.5 | 14.3 |
| D-13 | 12 | 50.5 | 356.7 | 3386.3 | -1436.3 | 14.1 |
| D-13 | 12 | 51 | 357.2 | 3393.2 | -1443.2 | 13.5 |
| D-13 | 12 | 51.5 | 357.7 | 3400.0 | -1450.0 | 12.8 |
| D-13 | 12 | 52 | 358.2 | 3406.9 | -1456.9 | 13.4 |
| D-13 | 12 | 52.5 | 358.7 | 3413.8 | -1463.8 | 13.7 |
| D-13 | 12 | 53 | 359.2 | 3420.6 | -1470.6 | 13.9 |
| D-13 | 12 | 53.5 | 359.7 | 3427.5 | -1477.5 | 13.5 |
| D-13 | 12 | 54 | 360.2 | 3434.3 | -1484.3 | 13.6 |
| D-13 | 12 | 54.5 | 360.7 | 3441.2 | -1491.2 | 12.8 |
| D-13 | 12 | 55 | 361.2 | 3448.1 | -1498.1 | 13.1 |
| D-13 | 12 | 55.5 | 361.7 | 3454.9 | -1504.9 | 13.3 |
| D-13 | 12 | 56 | 362.2 | 3461.8 | -1511.8 | 13.6 |
| D-13 | 12 | 56.5 | 362.7 | 3468.7 | -1518.7 | 13.3 |
| D-13 | 12 | 57 | 363.2 | 3475.6 | -1525.6 | 12.9 |
| D-13 | 12 | 57.5 | 363.7 | 3482.4 | -1532.4 | 12.6 |
| D-13 | 12 | 58 | 364.2 | 3489.3 | -1539.3 | 12.4 |
| D-13 | 12 | 58.5 | 364.7 | 3496.2 | -1546.2 | 12.8 |
| D-13 | 12 | 59 | 365.2 | 3503.1 | -1553.1 | 14.2 |
| D-13 | 12 | 59.5 | 365.7 | 3510.0 | -1560.0 | 13.2 |
| D-13 | 12 | 60 | 366.2 | 3516.9 | -1566.9 | 12.1 |
| D-13 | 12 | 60.5 | 366.7 | 3523.7 | -1573.7 | 12.6 |

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| D-13 | 12 | 61 | 367.2 | 3530.6 | -1580.6 | 12.5 |
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| D-13 | 12 | 62 | 368.2 | 3544.4 | -1594.4 | 13.1 |
| D-13 | 12 | 62.5 | 368.7 | 3551.3 | -1601.3 | 13 |
| D-13 | 12 | 63 | 369.2 | 3558.2 | -1608.2 | 12.6 |
| D-13 | 12 | 63.5 | 369.7 | 3565.1 | -1615.1 | 13.2 |
| D-13 | 12 | 64 | 370.2 | 3572.0 | -1622.0 | 13 |
| D-13 | 12 | 64.5 | 370.7 | 3578.9 | -1628.9 | 12.4 |
| D-13 | 12 | 65 | 371.2 | 3585.8 | -1635.8 | 13.1 |
| D-13 | 12 | 65.5 | 371.7 | 3592.7 | -1642.7 | 13.7 |
| D-13 | 12 | 66 | 372.2 | 3599.6 | -1649.6 | 12.8 |
| D-13 | 12 | 66.5 | 372.7 | 3606.5 | -1656.5 | 12.9 |
| D-13 | 12 | 67 | 373.2 | 3613.4 | -1663.4 | 13 |
| D-13 | 12 | 67.5 | 373.7 | 3620.3 | -1670.3 | 13.8 |
| D-13 | 12 | 68 | 374.2 | 3627.3 | -1677.3 | 12.6 |
| D-13 | 12 | 68.5 | 374.7 | 3634.2 | -1684.2 | 12.8 |
| D-13 | 12 | 69 | 375.2 | 3641.1 | -1691.1 | 11.7 |
| D-13 | 12 | 69.5 | 375.7 | 3648.0 | -1698.0 | 11 |
| D-13 | 12 | 70 | 376.2 | 3654.9 | -1704.9 | 12.2 |
| D-13 | 12 | 70.5 | 376.7 | 3661.8 | -1711.8 | 11.8 |
| D-13 | 12 | 71 | 377.2 | 3668.8 | -1718.8 | 11 |
| D-13 | 12 | 71.5 | 377.7 | 3675.7 | -1725.7 | 10.3 |
| D-13 | 12 | 72 | 378.2 | 3682.6 | -1732.6 | 10.5 |
| D-13 | 12 | 72.5 | 378.7 | 3689.6 | -1739.6 | 9.9 |
| D-13 | 12 | 73 | 379.2 | 3696.5 | -1746.5 | 10.7 |
| D-13 | 12 | 73.5 | 379.7 | 3703.4 | -1753.4 | 11.1 |
| D-13 | 12 | 74 | 380.2 | 3710.4 | -1760.4 | 12.1 |
| D-13 | 12 | 74.5 | 380.7 | 3717.3 | -1767.3 | 12 |
| D-13 | 12 | 75 | 381.2 | 3724.2 | -1774.2 | 12.2 |
| D-13 | 12 | 75.5 | 381.7 | 3731.2 | -1781.2 | 12.4 |
| D-13 | 12 | 76 | 382.2 | 3738.1 | -1788.1 | 12.8 |
| D-13 | 12 | 76.5 | 382.7 | 3745.1 | -1795.1 | 13.3 |
| D-13 | 12 | 77 | 383.2 | 3752.0 | -1802.0 | 13.8 |
| D-13 | 12 | 77.5 | 383.7 | 3758.9 | -1808.9 | 14.1 |
| D-13 | 12 | 78 | 384.2 | 3765.9 | -1815.9 | 14.3 |
| D-13 | 12 | 78.5 | 384.7 | 3772.9 | -1822.9 | 14.8 |
| D-13 | 12 | 79 | 385.2 | 3779.8 | -1829.8 | 14 |
| D-13 | 12 | 79.5 | 385.7 | 3786.8 | -1836.8 | 13.6 |
| D-13 | 12 | 80 | 386.2 | 3793.7 | -1843.7 | 13 |
| D-13 | 12 | 80.5 | 386.7 | 3800.7 | -1850.7 | 13 |
| D-13 | 12 | 81 | 387.2 | 3807.6 | -1857.6 | 14.1 |

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| D-13 | 12 | 81.5 | 387.7 | 3814.6 | -1864.6 | 13.8 |
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| D-13 | 12 | 82.5 | 388.7 | 3828.5 | -1878.5 | 11.6 |
| D-13 | 12 | 83 | 389.2 | 3835.5 | -1885.5 | 11.8 |
| D-13 | 12 | 83.5 | 389.7 | 3842.5 | -1892.5 | 11.7 |
| D-13 | 12 | 84 | 390.2 | 3849.4 | -1899.4 | 12 |
| D-13 | 12 | 84.5 | 390.7 | 3856.4 | -1906.4 | 12 |
| D-13 | 12 | 85 | 391.2 | 3863.4 | -1913.4 | 11.9 |
| D-13 | 12 | 85.5 | 391.7 | 3870.4 | -1920.4 | 12.3 |
| D-13 | 12 | 86 | 392.2 | 3877.4 | -1927.4 | 12 |
| D-13 | 12 | 86.5 | 392.7 | 3884.3 | -1934.3 | 12.7 |
| D-13 | 12 | 87 | 393.2 | 3891.3 | -1941.3 | 12.4 |
| D-13 | 12 | 87.5 | 393.7 | 3898.3 | -1948.3 | 11.9 |
| D-13 | 12 | 88 | 394.2 | 3905.3 | -1955.3 | 12.8 |
| D-13 | 12 | 88.5 | 394.7 | 3912.3 | -1962.3 | 13.3 |
| D-13 | 12 | 89 | 395.2 | 3919.3 | -1969.3 | 13 |
| E-13 | 8 | 29.5 | 395.5 | 3923.5 | -1973.5 | 10.7 |
| E-13 | 8 | 30 | 396 | 3930.5 | -1980.5 | 10.3 |
| E-13 | 8 | 30.5 | 396.5 | 3937.5 | -1987.5 | 10.6 |
| E-13 | 8 | 31 | 397 | 3944.5 | -1994.5 | 10.6 |
| E-13 | 8 | 31.5 | 397.5 | 3951.5 | -2001.5 | 9.9 |
| E-13 | 8 | 32 | 398 | 3958.5 | -2008.5 | 10.9 |
| E-13 | 8 | 32.5 | 398.5 | 3965.5 | -2015.5 | 10.7 |
| E-13 | 8 | 33 | 399 | 3972.5 | -2022.5 | 10.5 |
| E-13 | 8 | 33.5 | 399.5 | 3979.5 | -2029.5 | 10.8 |
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| E-13 | 8 | 34.5 | 400.5 | 3993.6 | -2043.6 | 12.3 |
| E-13 | 8 | 35 | 401 | 4000.6 | -2050.6 | 12.2 |
| E-13 | 8 | 35.5 | 401.5 | 4007.6 | -2057.6 | 11.1 |
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| E-13 | 8 | 36.5 | 402.5 | 4021.6 | -2071.6 | 10.6 |
| E-13 | 8 | 37 | 403 | 4028.7 | -2078.7 | 10.8 |
| E-13 | 8 | 37.5 | 403.5 | 4035.7 | -2085.7 | 11.5 |
| E-13 | 8 | 38 | 404 | 4042.7 | -2092.7 | 12.6 |
| E-13 | 8 | 38.5 | 404.5 | 4049.8 | -2099.8 | 12.4 |
| E-13 | 8 | 39 | 405 | 4056.8 | -2106.8 | 12 |
| E-13 | 8 | 39.5 | 405.5 | 4063.8 | -2113.8 | 11.5 |
| E-13 | 8 | 40 | 406 | 4070.9 | -2120.9 | 11.7 |
| E-13 | 8 | 40.5 | 406.5 | 4077.9 | -2127.9 | 12 |
| E-13 | 8 | 41 | 407 | 4085.0 | -2135.0 | 12.4 |
| E-13 | 8 | 41.5 | 407.5 | 4092.0 | -2142.0 | 13.4 |

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| E-13 | 8 | 42.5 | 408.5 | 4106.1 | -2156.1 | 11.9 |
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| E-13 | 8 | 43.5 | 409.5 | 4120.2 | -2170.2 | 12.9 |
| E-13 | 8 | 44 | 410 | 4127.3 | -2177.3 | 12.2 |
| E-13 | 8 | 44.5 | 410.5 | 4134.4 | -2184.4 | 11.2 |
| E-13 | 8 | 45 | 411 | 4141.4 | -2191.4 | 11.4 |
| E-13 | 8 | 45.5 | 411.5 | 4148.5 | -2198.5 | 11.4 |
| E-13 | 8 | 46 | 412 | 4155.6 | -2205.6 | 11.4 |
| E-13 | 8 | 46.5 | 412.5 | 4162.6 | -2212.6 | 12.6 |
| E-13 | 8 | 47 | 413 | 4169.7 | -2219.7 | 12.6 |
| E-13 | 8 | 47.5 | 413.5 | 4176.8 | -2226.8 | 11.6 |
| E-13 | 8 | 48 | 414 | 4183.9 | -2233.9 | 11.6 |
| E-13 | 8 | 48.5 | 414.5 | 4190.9 | -2240.9 | 11.4 |
| E-13 | 8 | 49 | 415 | 4198.0 | -2248.0 | 11.6 |
| E-13 | 8 | 49.5 | 415.5 | 4205.1 | -2255.1 | 11 |
| E-13 | 8 | 50 | 416 | 4212.2 | -2262.2 | 11 |
| E-13 | 8 | 50.5 | 416.5 | 4219.3 | -2269.3 | 11.4 |
| E-13 | 8 | 51 | 417 | 4226.4 | -2276.4 | 11.6 |
| E-13 | 8 | 51.5 | 417.5 | 4233.5 | -2283.5 | 11.3 |
| E-13 | 8 | 52 | 418 | 4240.6 | -2290.6 | 11.6 |
| E-13 | 8 | 52.5 | 418.5 | 4247.7 | -2297.7 | 11.8 |
| E-13 | 8 | 53 | 419 | 4254.8 | -2304.8 | 11 |
| E-13 | 8 | 53.5 | 419.5 | 4261.9 | -2311.9 | 10.9 |
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| E-13 | 8 | 54.5 | 420.5 | 4276.1 | -2326.1 | 11.5 |
| E-13 | 8 | 55 | 421 | 4283.3 | -2333.3 | 11.5 |
| E-13 | 8 | 55.5 | 421.5 | 4290.4 | -2340.4 | 11 |
| E-13 | 8 | 56 | 422 | 4297.5 | -2347.5 | 11 |
| E-13 | 8 | 56.5 | 422.5 | 4304.6 | -2354.6 | 10.5 |
| E-13 | 8 | 57 | 423 | 4311.8 | -2361.8 | 11.5 |
| E-13 | 8 | 57.5 | 423.5 | 4318.9 | -2368.9 | 11.7 |
| E-13 | 8 | 58 | 424 | 4326.0 | -2376.0 | 11.6 |
| E-13 | 8 | 58.5 | 424.5 | 4333.2 | -2383.2 | 10.8 |
| E-13 | 8 | 59 | 425 | 4340.3 | -2390.3 | 10.6 |
| E-13 | 8 | 59.5 | 425.5 | 4347.4 | -2397.4 | |
| E-13 | 8 | 60 | 426 | 4354.6 | -2404.6 | |
| E-13 | 8 | 60.5 | 426.5 | 4361.7 | -2411.7 | |
| E-13 | 8 | 61 | 427 | 4368.9 | -2418.9 | |
| E-13 | 8 | 61.5 | 427.5 | 4376.0 | -2426.0 | |
| E-13 | 8 | 62 | 428 | 4383.2 | -2433.2 | |

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| E-13 | 8 | 62.5 | 428.5 | 4390.3 | -2440.3 | |
| E-13 | 8 | 63 | 429 | 4397.5 | -2447.5 | |
| E-13 | 8 | 63.5 | 429.5 | 4404.7 | -2454.7 | |
| E-13 | 8 | 64 | 430 | 4411.8 | -2461.8 | |
| E-13 | 8 | 64.5 | 430.5 | 4419.0 | -2469.0 | |
| E-13 | 8 | 65 | 431 | 4426.2 | -2476.2 | |
| E-13 | 8 | 65.5 | 431.5 | 4433.4 | -2483.4 | |
| E-13 | 8 | 66 | 432 | 4440.5 | -2490.5 | |
| E-13 | 8 | 66.5 | 432.5 | 4447.7 | -2497.7 | |
| D-13 | 13 | 31 | 433 | 4454.9 | -2504.9 | 12.4 |
| D-13 | 13 | 31.5 | 433.5 | 4462.1 | -2512.1 | 13 |
| D-13 | 13 | 32 | 434 | 4469.3 | -2519.3 | 13.4 |
| D-13 | 13 | 32.5 | 434.5 | 4476.5 | -2526.5 | 12.9 |
| D-13 | 13 | 33 | 435 | 4483.7 | -2533.7 | 12.9 |
| D-13 | 13 | 33.5 | 435.5 | 4490.9 | -2540.9 | 13.1 |
| D-13 | 13 | 34 | 436 | 4498.1 | -2548.1 | 14.7 |
| D-13 | 13 | 34.5 | 436.5 | 4505.3 | -2555.3 | 14.4 |
| D-13 | 13 | 35 | 437 | 4512.5 | -2562.5 | 14.8 |
| D-13 | 13 | 35.5 | 437.5 | 4519.7 | -2569.7 | 13.6 |
| D-13 | 13 | 36 | 438 | 4527.0 | -2577.0 | 13.6 |
| D-13 | 13 | 36.5 | 438.5 | 4534.2 | -2584.2 | 13.3 |
| D-13 | 13 | 37 | 439 | 4541.4 | -2591.4 | 13.4 |
| D-13 | 13 | 37.5 | 439.5 | 4548.6 | -2598.6 | 12.3 |
| D-13 | 13 | 38 | 440 | 4555.9 | -2605.9 | 12.8 |
| D-13 | 13 | 38.5 | 440.5 | 4563.1 | -2613.1 | 13 |
| D-13 | 13 | 39 | 441 | 4570.4 | -2620.4 | 12.6 |
| D-13 | 13 | 39.5 | 441.5 | 4577.6 | -2627.6 | 12.8 |
| D-13 | 13 | 40 | 442 | 4584.8 | -2634.8 | 12.4 |
| D-13 | 13 | 40.5 | 442.5 | 4592.1 | -2642.1 | 12.8 |
| D-13 | 13 | 41 | 443 | 4599.3 | -2649.3 | 14.6 |
| D-13 | 13 | 41.5 | 443.5 | 4606.6 | -2656.6 | 14.2 |
| D-13 | 13 | 42 | 444 | 4613.9 | -2663.9 | 14 |
| D-13 | 13 | 42.5 | 444.5 | 4621.1 | -2671.1 | 14.2 |
| D-13 | 13 | 43 | 445 | 4628.4 | -2678.4 | 15 |
| D-13 | 13 | 43.5 | 445.5 | 4635.7 | -2685.7 | 12.6 |
| D-13 | 13 | 44 | 446 | 4642.9 | -2692.9 | 11.4 |
| D-13 | 13 | 44.5 | 446.5 | 4650.2 | -2700.2 | 11.1 |
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| D-13 | 13 | 45.5 | 447.5 | 4664.8 | -2714.8 | 13 |
| D-13 | 13 | 46 | 448 | 4672.1 | -2722.1 | 12.2 |
| D-13 | 13 | 46.5 | 448.5 | 4679.4 | -2729.4 | 11.6 |

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| D-13 | 13 | 47 | 449 | 4686.7 | -2736.7 | 12.2 |
| D-13 | 13 | 47.5 | 449.5 | 4694.0 | -2744.0 | 12.4 |
| D-13 | 13 | 48 | 450 | 4701.3 | -2751.3 | 12.2 |
| D-13 | 13 | 48.5 | 450.5 | 4708.6 | -2758.6 | 12.4 |
| D-13 | 13 | 49 | 451 | 4715.9 | -2765.9 | 12.7 |
| D-13 | 13 | 49.5 | 451.5 | 4723.2 | -2773.2 | 12.8 |
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| D-13 | 13 | 51 | 453 | 4745.2 | -2795.2 | 12.4 |
| D-13 | 13 | 51.5 | 453.5 | 4752.5 | -2802.5 | 12 |
| D-13 | 13 | 52 | 454 | 4759.8 | -2809.8 | 12.2 |
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| D-13 | 13 | 53 | 455 | 4774.5 | -2824.5 | 12.1 |
| D-13 | 13 | 53.5 | 455.5 | 4781.9 | -2831.9 | 12.1 |
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| D-13 | 13 | 55.5 | 457.5 | 4811.3 | -2861.3 | 15.5 |
| D-13 | 13 | 56 | 458 | 4818.7 | -2868.7 | 14.9 |
| D-13 | 13 | 56.5 | 458.5 | 4826.1 | -2876.1 | 13.5 |
| D-13 | 13 | 57 | 459 | 4833.4 | -2883.4 | 12.8 |
| D-13 | 13 | 57.5 | 459.5 | 4840.8 | -2890.8 | 12.6 |
| D-13 | 13 | 58 | 460 | 4848.2 | -2898.2 | 13 |
| D-13 | 13 | 58.5 | 460.5 | 4855.6 | -2905.6 | 13.7 |
| D-13 | 13 | 59 | 461 | 4863.0 | -2913.0 | 13.2 |
| D-13 | 13 | 59.5 | 461.5 | 4870.4 | -2920.4 | 12.6 |
| D-13 | 13 | 60 | 462 | 4877.8 | -2927.8 | 13 |
| D-13 | 13 | 60.5 | 462.5 | 4885.2 | -2935.2 | 13.2 |
| D-13 | 13 | 61 | 463 | 4892.6 | -2942.6 | 12.6 |
| D-13 | 13 | 61.5 | 463.5 | 4900.0 | -2950.0 | 13.6 |
| D-13 | 13 | 62 | 464 | 4907.4 | -2957.4 | 13.7 |
| D-13 | 13 | 62.5 | 464.5 | 4914.9 | -2964.9 | 13.9 |
| D-13 | 13 | 63 | 465 | 4922.3 | -2972.3 | 13.2 |
| D-13 | 13 | 63.5 | 465.5 | 4929.7 | -2979.7 | 13.4 |
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| D-13 | 13 | 64.5 | 466.5 | 4944.6 | -2994.6 | 13 |
| D-13 | 13 | 65 | 467 | 4952.0 | -3002.0 | 14 |
| D-13 | 13 | 65.5 | 467.5 | 4959.5 | -3009.5 | 13.3 |
| D-13 | 13 | 66 | 468 | 4966.9 | -3016.9 | 13.7 |
| D-13 | 13 | 66.5 | 468.5 | 4974.4 | -3024.4 | 16 |
| D-13 | 13 | 67 | 469 | 4981.9 | -3031.9 | 13.8 |

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| D-13 | 13 | 67.5 | 469.5 | 4989.3 | -3039.3 | 14 |
| D-13 | 13 | 68 | 470 | 4996.8 | -3046.8 | 15 |
| D-13 | 13 | 68.5 | 470.5 | 5004.3 | -3054.3 | 13.6 |
| D-13 | 13 | 69 | 471 | 5011.8 | -3061.8 | 14 |
| D-13 | 13 | 69.5 | 471.5 | 5019.3 | -3069.3 | 12.8 |
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| D-13 | 13 | 70.5 | 472.5 | 5034.3 | -3084.3 | 13.4 |
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| D-13 | 13 | 72 | 474 | 5056.8 | -3106.8 | 13.9 |
| D-13 | 13 | 72.5 | 474.5 | 5064.3 | -3114.3 | 13.9 |
| D-13 | 13 | 73 | 475 | 5071.8 | -3121.8 | 13.9 |
| D-13 | 13 | 73.5 | 475.5 | 5079.4 | -3129.4 | 13 |
| D-13 | 13 | 74 | 476 | 5086.9 | -3136.9 | 13.2 |
| D-13 | 13 | 74.5 | 476.5 | 5094.4 | -3144.4 | 13.6 |
| D-13 | 13 | 75 | 477 | 5102.0 | -3152.0 | 14.1 |
| D-13 | 13 | 75.5 | 477.5 | 5109.5 | -3159.5 | 13.8 |
| D-13 | 13 | 76 | 478 | 5117.1 | -3167.1 | 13.5 |
| D-13 | 13 | 76.5 | 478.5 | 5124.6 | -3174.6 | 13.4 |
| D-13 | 13 | 77 | 479 | 5132.2 | -3182.2 | 13.3 |
| D-13 | 13 | 77.5 | 479.5 | 5139.8 | -3189.8 | 14 |
| D-13 | 13 | 78 | 480 | 5147.3 | -3197.3 | 14.6 |
| D-13 | 13 | 78.5 | 480.5 | 5154.9 | -3204.9 | 13.5 |
| D-13 | 13 | 79 | 481 | 5162.5 | -3212.5 | 15.4 |
| D-13 | 13 | 79.5 | 481.5 | 5170.1 | -3220.1 | 15.6 |
| D-13 | 13 | 80 | 482 | 5177.7 | -3227.7 | 14.4 |
| D-13 | 13 | 80.5 | 482.5 | 5185.3 | -3235.3 | 13.7 |
| D-13 | 13 | 81 | 483 | 5192.9 | -3242.9 | 13.4 |
| D-13 | 13 | 81.5 | 483.5 | 5200.5 | -3250.5 | 13.6 |
| D-13 | 13 | 82 | 484 | 5208.1 | -3258.1 | 14.8 |
| D-13 | 13 | 82.5 | 484.5 | 5215.7 | -3265.7 | 14.8 |
| D-13 | 13 | 83 | 485 | 5223.4 | -3273.4 | 15 |
| D-13 | 13 | 83.5 | 485.5 | 5231.0 | -3281.0 | 14.2 |
| D-13 | 13 | 84 | 486 | 5238.7 | -3288.7 | 14.6 |
| D-13 | 13 | 84.5 | 486.5 | 5246.3 | -3296.3 | 14.6 |
| D-13 | 13 | 85 | 487 | 5253.9 | -3303.9 | 14.6 |
| D-13 | 13 | 85.5 | 487.5 | 5261.6 | -3311.6 | 15.2 |
| D-13 | 13 | 86 | 488 | 5269.3 | -3319.3 | 14.6 |
| D-13 | 13 | 86.5 | 488.5 | 5276.9 | -3326.9 | 14.5 |
| D-13 | 13 | 87 | 489 | 5284.6 | -3334.6 | 15.4 |
| D-13 | 13 | 87.5 | 489.5 | 5292.3 | -3342.3 | 14.6 |

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| D-13 | 13 | 88 | 490 | 5300.0 | -3350.0 | 15 |
| D-13 | 13 | 88.5 | 490.5 | 5307.7 | -3357.7 | 14.6 |
| D-13 | 13 | 89 | 491 | 5315.4 | -3365.4 | 14.8 |
| D-13 | 13 | 89.5 | 491.5 | 5323.1 | -3373.1 | 16.5 |
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| D-13 | 13 | 90.5 | 492.5 | 5338.5 | -3388.5 | 15.6 |
| D-13 | 13 | 91 | 493 | 5346.2 | -3396.2 | 15.5 |
| D-13 | 13 | 91.5 | 493.5 | 5353.9 | -3403.9 | 15.1 |
| D-13 | 13 | 92 | 494 | 5361.7 | -3411.7 | 15.1 |
| D-13 | 13 | 92.5 | 494.5 | 5369.4 | -3419.4 | 14.1 |
| D-13 | 13 | 93 | 495 | 5377.1 | -3427.1 | 14.2 |
| D-13 | 13 | 93.5 | 495.5 | 5384.9 | -3434.9 | 13.5 |
| D-13 | 13 | 94 | 496 | 5392.7 | -3442.7 | 13.6 |
| D-13 | 13 | 94.5 | 496.5 | 5400.4 | -3450.4 | 13.5 |
| D-13 | 13 | 95 | 497 | 5408.2 | -3458.2 | 14 |
| E-13 | 9 | 60.5 | 497.5 | 5416.0 | -3466.0 | 13 |
| E-13 | 9 | 61 | 498 | 5423.8 | -3473.8 | 13.1 |
| E-13 | 9 | 61.5 | 498.5 | 5431.5 | -3481.5 | 13 |
| E-13 | 9 | 62 | 499 | 5439.3 | -3489.3 | 14.4 |
| E-13 | 9 | 62.5 | 499.5 | 5447.1 | -3497.1 | 12.4 |
| E-13 | 9 | 63 | 500 | 5454.9 | -3504.9 | 11.4 |
| E-13 | 9 | 63.5 | 500.5 | 5462.8 | -3512.8 | 11.3 |
| E-13 | 9 | 64 | 501 | 5470.6 | -3520.6 | 12 |
| E-13 | 9 | 64.5 | 501.5 | 5478.4 | -3528.4 | 12.4 |
| E-13 | 9 | 65 | 502 | 5486.2 | -3536.2 | 12.4 |
| E-13 | 9 | 65.5 | 502.5 | 5494.1 | -3544.1 | 12 |
| E-13 | 9 | 66 | 503 | 5501.9 | -3551.9 | 11.8 |
| E-13 | 9 | 66.5 | 503.5 | 5509.8 | -3559.8 | 12.8 |
| E-13 | 9 | 67 | 504 | 5517.6 | -3567.6 | 13.7 |
| E-13 | 9 | 67.5 | 504.5 | 5525.5 | -3575.5 | 12.5 |
| E-13 | 9 | 68 | 505 | 5533.4 | -3583.4 | 11.7 |
| E-13 | 9 | 68.5 | 505.5 | 5541.3 | -3591.3 | 10.9 |
| E-13 | 9 | 69 | 506 | 5549.2 | -3599.2 | 11.4 |
| E-13 | 9 | 69.5 | 506.5 | 5557.0 | -3607.0 | 13.5 |
| E-13 | 9 | 70 | 507 | 5564.9 | -3614.9 | 12.4 |
| E-13 | 9 | 70.5 | 507.5 | 5572.9 | -3622.9 | 11.8 |
| E-13 | 9 | 71 | 508 | 5580.8 | -3630.8 | 11.6 |
| E-13 | 9 | 71.5 | 508.5 | 5588.7 | -3638.7 | 11.4 |
| E-13 | 9 | 72 | 509 | 5596.6 | -3646.6 | 12.8 |
| E-13 | 9 | 72.5 | 509.5 | 5604.6 | -3654.6 | 12 |
| E-13 | 9 | 73 | 510 | 5612.5 | -3662.5 | 12 |

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| E-13 | 9 | 73.5 | 510.5 | 5620.5 | -3670.5 | 12 |
| E-13 | 9 | 74 | 511 | 5628.4 | -3678.4 | 11.9 |
| E-13 | 9 | 74.5 | 511.5 | 5636.4 | -3686.4 | 11.9 |
| E-13 | 9 | 75 | 512 | 5644.3 | -3694.3 | 12.6 |
| E-13 | 9 | 75.5 | 512.5 | 5652.3 | -3702.3 | 12.7 |
| E-13 | 9 | 76 | 513 | 5660.3 | -3710.3 | 12.4 |
| E-13 | 9 | 76.5 | 513.5 | 5668.3 | -3718.3 | 13.2 |
| E-13 | 9 | 77 | 514 | 5676.3 | -3726.3 | 12 |
| E-13 | 9 | 77.5 | 514.5 | 5684.3 | -3734.3 | 11.5 |
| E-13 | 9 | 78 | 515 | 5692.3 | -3742.3 | 11.9 |
| E-13 | 9 | 78.5 | 515.5 | 5700.4 | -3750.4 | 11.6 |
| E-13 | 9 | 79 | 516 | 5708.4 | -3758.4 | 12.9 |
| E-13 | 9 | 79.5 | 516.5 | 5716.4 | -3766.4 | 12.1 |
| E-13 | 9 | 80 | 517 | 5724.5 | -3774.5 | 13.2 |
| E-13 | 9 | 80.5 | 517.5 | 5732.5 | -3782.5 | 13.4 |
| E-13 | 9 | 81 | 518 | 5740.6 | -3790.6 | 14.7 |
| E-13 | 9 | 81.5 | 518.5 | 5748.7 | -3798.7 | 13.9 |
| E-13 | 9 | 82 | 519 | 5756.7 | -3806.7 | 12.4 |
| E-13 | 9 | 82.5 | 519.5 | 5764.8 | -3814.8 | 15.1 |
| E-13 | 9 | 83 | 520 | 5772.9 | -3822.9 | 12.9 |
| E-13 | 9 | 83.5 | 520.5 | 5781.0 | -3831.0 | 13.1 |
| E-13 | 9 | 84 | 521 | 5789.1 | -3839.1 | 11.6 |
| E-13 | 9 | 84.5 | 521.5 | 5797.2 | -3847.2 | 12.4 |
| E-13 | 9 | 85 | 522 | 5805.4 | -3855.4 | 12.9 |
| E-13 | 9 | 85.5 | 522.5 | 5813.5 | -3863.5 | 12.4 |
| E-13 | 9 | 86 | 523 | 5821.6 | -3871.6 | 12.2 |
| E-13 | 9 | 86.5 | 523.5 | 5829.8 | -3879.8 | 11.6 |
| E-13 | 9 | 87 | 524 | 5837.9 | -3887.9 | 11.9 |
| E-13 | 9 | 87.5 | 524.5 | 5846.1 | -3896.1 | 12.2 |
| E-13 | 9 | 88 | 525 | 5854.3 | -3904.3 | 13.4 |
| E-13 | 9 | 88.5 | 525.5 | 5862.5 | -3912.5 | 14.3 |
| E-13 | 9 | 89 | 526 | 5870.6 | -3920.6 | 12.8 |
| E-13 | 9 | 89.5 | 526.5 | 5878.8 | -3928.8 | 13 |
| E-13 | 9 | 90 | 527 | 5887.0 | -3937.0 | 14.4 |
| E-13 | 9 | 90.5 | 527.5 | 5895.3 | -3945.3 | 13.8 |
| E-13 | 9 | 91 | 528 | 5903.5 | -3953.5 | 13.2 |
| E-13 | 9 | 91.5 | 528.5 | 5911.7 | -3961.7 | 13.8 |
| E-13 | 9 | 92 | 529 | 5920.0 | -3970.0 | 13.6 |
| E-13 | 9 | 92.5 | 529.5 | 5928.2 | -3978.2 | 12.4 |
| E-13 | 9 | 93 | 530 | 5936.5 | -3986.5 | 13.2 |
| E-13 | 9 | 93.5 | 530.5 | 5944.7 | -3994.7 | 13.3 |

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|---|---|---|---|---|---|---|
| E-13 | 9 | 94 | 531 | 5953.0 | -4003.0 | 13.8 |
| E-13 | 9 | 94.5 | 531.5 | 5961.3 | -4011.3 | 12.8 |
| E-13 | 9 | 95 | 532 | 5969.6 | -4019.6 | 12.4 |
| E-13 | 9 | 95.5 | 532.5 | 5977.9 | -4027.9 | 11.2 |
| E-13 | 9 | 96 | 533 | 5986.2 | -4036.2 | 11.8 |
| E-13 | 9 | 96.5 | 533.5 | 5994.5 | -4044.5 | 12 |
| E-13 | 9 | 97 | 534 | 6002.8 | -4052.8 | 12.2 |
| E-13 | 9 | 97.5 | 534.5 | 6011.1 | -4061.1 | 12 |
| E-13 | 9 | 98 | 535 | 6019.5 | -4069.5 | 10.1 |
| E-13 | 9 | 98.5 | 535.5 | 6027.8 | -4077.8 | 9.8 |
| E-13 | 9 | 99 | 536 | 6036.2 | -4086.2 | 10 |
| D-13 | 14 | 42.5 | 536.5 | 6044.6 | -4094.6 | 11.8 |
| D-13 | 14 | 43 | 537 | 6053.0 | -4103.0 | 10.1 |
| D-13 | 14 | 43.5 | 537.5 | 6061.3 | -4111.3 | 9 |
| D-13 | 14 | 44 | 538 | 6069.7 | -4119.7 | 12.9 |
| D-13 | 14 | 44.5 | 538.5 | 6078.1 | -4128.1 | 13.6 |
| D-13 | 14 | 45 | 539 | 6086.6 | -4136.6 | 12.6 |
| D-13 | 14 | 45.5 | 539.5 | 6095.0 | -4145.0 | 12.6 |
| D-13 | 14 | 46 | 540 | 6103.4 | -4153.4 | 12 |
| D-13 | 14 | 46.5 | 540.5 | 6111.9 | -4161.9 | 13 |
| D-13 | 14 | 47 | 541 | 6120.3 | -4170.3 | 13.1 |
| D-13 | 14 | 47.5 | 541.5 | 6128.8 | -4178.8 | 12.8 |
| D-13 | 14 | 48 | 542 | 6137.3 | -4187.3 | 12.7 |
| D-13 | 14 | 48.5 | 542.5 | 6145.7 | -4195.7 | 13.2 |
| D-13 | 14 | 49 | 543 | 6154.2 | -4204.2 | 12 |
| D-13 | 14 | 49.5 | 543.5 | 6162.7 | -4212.7 | 11.7 |
| D-13 | 14 | 50 | 544 | 6171.2 | -4221.2 | 11.5 |
| D-13 | 14 | 50.5 | 544.5 | 6179.8 | -4229.8 | 12.4 |
| D-13 | 14 | 51 | 545 | 6188.3 | -4238.3 | 12.2 |
| D-13 | 14 | 51.5 | 545.5 | 6196.8 | -4246.8 | 11.7 |
| D-13 | 14 | 52 | 546 | 6205.4 | -4255.4 | 12.3 |
| D-13 | 14 | 52.5 | 546.5 | 6213.9 | -4263.9 | 13.7 |
| D-13 | 14 | 53 | 547 | 6222.5 | -4272.5 | 11.9 |
| D-13 | 14 | 53.5 | 547.5 | 6231.1 | -4281.1 | 11.8 |
| D-13 | 14 | 54 | 548 | 6239.7 | -4289.7 | 12.3 |
| D-13 | 14 | 54.5 | 548.5 | 6248.3 | -4298.3 | 11.8 |
| D-13 | 14 | 55 | 549 | 6256.9 | -4306.9 | 12.6 |
| D-13 | 14 | 55.5 | 549.5 | 6265.5 | -4315.5 | 13 |
| D-13 | 14 | 56 | 550 | 6274.1 | -4324.1 | 13.6 |
| D-13 | 14 | 56.5 | 550.5 | 6282.8 | -4332.8 | 13.9 |
| D-13 | 14 | 57 | 551 | 6291.4 | -4341.4 | 13.9 |

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|---|---|---|---|---|---|---|
| D-13 | 14 | 57.5 | 551.5 | 6300.1 | -4350.1 | 14 |
| D-13 | 14 | 58 | 552 | 6308.7 | -4358.7 | 14.6 |
| D-13 | 14 | 58.5 | 552.5 | 6317.4 | -4367.4 | 14.2 |
| D-13 | 14 | 59 | 553 | 6326.1 | -4376.1 | 14.4 |
| D-13 | 14 | 59.5 | 553.5 | 6334.8 | -4384.8 | 14.3 |
| D-13 | 14 | 60 | 554 | 6343.5 | -4393.5 | 13.8 |
| D-13 | 14 | 60.5 | 554.5 | 6352.2 | -4402.2 | 13.6 |
| D-13 | 14 | 61 | 555 | 6361.0 | -4411.0 | 14.1 |
| D-13 | 14 | 61.5 | 555.5 | 6369.7 | -4419.7 | 13.8 |
| D-13 | 14 | 62 | 556 | 6378.5 | -4428.5 | 13.9 |
| D-13 | 14 | 62.5 | 556.5 | 6387.2 | -4437.2 | 13.8 |
| D-13 | 14 | 63 | 557 | 6396.0 | -4446.0 | 15 |
| D-13 | 14 | 63.5 | 557.5 | 6404.8 | -4454.8 | 14.6 |
| D-13 | 14 | 64 | 558 | 6413.6 | -4463.6 | 14.5 |
| D-13 | 14 | 64.5 | 558.5 | 6422.4 | -4472.4 | 15.5 |
| D-13 | 14 | 65 | 559 | 6431.2 | -4481.2 | 14.4 |
| D-13 | 14 | 65.5 | 559.5 | 6440.1 | -4490.1 | 13.8 |
| D-13 | 14 | 66 | 560 | 6448.9 | -4498.9 | 14.4 |
| D-13 | 14 | 66.5 | 560.5 | 6457.8 | -4507.8 | 14 |
| D-13 | 14 | 67 | 561 | 6466.6 | -4516.6 | 14.9 |
| D-13 | 14 | 67.5 | 561.5 | 6475.5 | -4525.5 | 15.5 |
| D-13 | 14 | 68 | 562 | 6484.4 | -4534.4 | 16.1 |
| D-13 | 14 | 68.5 | 562.5 | 6493.3 | -4543.3 | 15 |
| D-13 | 14 | 69 | 563 | 6502.2 | -4552.2 | 15.1 |
| D-13 | 14 | 69.5 | 563.5 | 6511.1 | -4561.1 | 14.9 |
| D-13 | 14 | 70 | 564 | 6520.0 | -4570.0 | 15.1 |
| D-13 | 14 | 70.5 | 564.5 | 6529.0 | -4579.0 | 14.5 |
| D-13 | 14 | 71 | 565 | 6537.9 | -4587.9 | 14 |
| D-13 | 14 | 71.5 | 565.5 | 6546.9 | -4596.9 | 14 |
| D-13 | 14 | 72 | 566 | 6555.9 | -4605.9 | 13 |
| D-13 | 14 | 72.5 | 566.5 | 6564.8 | -4614.8 | 12.7 |
| D-13 | 14 | 73 | 567 | 6573.8 | -4623.8 | 12 |
| D-13 | 14 | 73.5 | 567.5 | 6582.9 | -4632.9 | 13.1 |
| D-13 | 14 | 74 | 568 | 6591.9 | -4641.9 | 12.8 |
| D-13 | 14 | 74.5 | 568.5 | 6600.9 | -4650.9 | 12.2 |
| D-13 | 14 | 75 | 569 | 6610.0 | -4660.0 | 12.3 |
| D-13 | 14 | 75.5 | 569.5 | 6619.0 | -4669.0 | 12.4 |
| D-13 | 14 | 76 | 570 | 6628.1 | -4678.1 | 13.9 |
| D-13 | 14 | 76.5 | 570.5 | 6637.2 | -4687.2 | 15.6 |
| D-13 | 14 | 77 | 571 | 6646.3 | -4696.3 | 15 |
| D-13 | 14 | 77.5 | 571.5 | 6655.4 | -4705.4 | 13.5 |

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|---|---|---|---|---|---|---|
| D-13 | 14 | 78 | 572 | 6664.5 | -4714.5 | 14.4 |
| D-13 | 14 | 78.5 | 572.5 | 6673.6 | -4723.6 | 14.5 |
| D-13 | 14 | 79 | 573 | 6682.8 | -4732.8 | 14 |
| D-13 | 14 | 79.5 | 573.5 | 6691.9 | -4741.9 | 14.3 |
| D-13 | 14 | 80 | 574 | 6701.1 | -4751.1 | 13.9 |
| D-13 | 14 | 80.5 | 574.5 | 6710.3 | -4760.3 | 13.7 |
| D-13 | 14 | 81 | 575 | 6719.5 | -4769.5 | 14.2 |
| D-13 | 14 | 81.5 | 575.5 | 6728.7 | -4778.7 | 15.4 |
| D-13 | 14 | 82 | 576 | 6737.9 | -4787.9 | 15 |
| D-13 | 14 | 82.5 | 576.5 | 6747.1 | -4797.1 | 14.1 |
| D-13 | 14 | 83 | 577 | 6756.3 | -4806.3 | 13.2 |
| D-13 | 14 | 83.5 | 577.5 | 6765.6 | -4815.6 | 13.7 |
| D-13 | 14 | 84 | 578 | 6774.9 | -4824.9 | 12.7 |
| D-13 | 14 | 84.5 | 578.5 | 6784.1 | -4834.1 | 7 |
| D-13 | 14 | 85 | 579 | 6793.4 | -4843.4 | 7.2 |
| D-13 | 14 | 85.5 | 579.5 | 6802.7 | -4852.7 | 8.3 |
| D-13 | 14 | 86 | 580 | 6812.1 | -4862.1 | 9.7 |
| D-13 | 14 | 86.5 | 580.5 | 6821.4 | -4871.4 | 9.9 |
| D-13 | 14 | 87 | 581 | 6830.7 | -4880.7 | 11 |
| D-13 | 14 | 87.5 | 581.5 | 6840.1 | -4890.1 | 12.2 |
| D-13 | 14 | 88 | 582 | 6849.5 | -4899.5 | 14.7 |
| D-13 | 14 | 88.5 | 582.5 | 6858.8 | -4908.8 | 14.4 |
| D-13 | 14 | 89 | 583 | 6868.2 | -4918.2 | 11.5 |
| D-13 | 14 | 89.5 | 583.5 | 6877.6 | -4927.6 | 12.4 |
| D-13 | 14 | 90 | 584 | 6887.1 | -4937.1 | 14 |
| D-13 | 14 | 90.5 | 584.5 | 6896.5 | -4946.5 | 13.3 |
| D-13 | 14 | 91 | 585 | 6906.0 | -4956.0 | 12.8 |
| D-13 | 14 | 91.5 | 585.5 | 6915.4 | -4965.4 | 11.8 |
| D-13 | 14 | 92 | 586 | 6924.9 | -4974.9 | 11 |
| D-13 | 14 | 92.5 | 586.5 | 6934.4 | -4984.4 | 8.9 |
| F-13 | 2 | 54.5 | 586.7 | 6938.2 | -4988.2 | 11 |
| F-13 | 2 | 55 | 587.2 | 6947.7 | -4997.7 | 11.1 |
| F-13 | 2 | 55.5 | 587.7 | 6957.2 | -5007.2 | 11.4 |
| F-13 | 2 | 56 | 588.2 | 6966.7 | -5016.7 | 11.4 |
| F-13 | 2 | 56.5 | 588.7 | 6976.3 | -5026.3 | 11.1 |
| F-13 | 2 | 57 | 589.2 | 6985.9 | -5035.9 | 11.4 |
| F-13 | 2 | 57.5 | 589.7 | 6995.4 | -5045.4 | 11 |
| F-13 | 2 | 58 | 590.2 | 7005.0 | -5055.0 | 11.2 |
| F-13 | 2 | 58.5 | 590.7 | 7014.6 | -5064.6 | 12.2 |
| F-13 | 2 | 59 | 591.2 | 7024.2 | -5074.2 | 12.2 |
| F-13 | 2 | 59.5 | 591.7 | 7033.9 | -5083.9 | 12.5 |

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|---|---|---|---|---|---|---|
| F-13 | 2 | 60 | 592.2 | 7043.5 | -5093.5 | 12.7 |
| F-13 | 2 | 60.5 | 592.7 | 7053.2 | -5103.2 | 13 |
| F-13 | 2 | 61 | 593.2 | 7062.9 | -5112.9 | 12.2 |
| F-13 | 2 | 61.5 | 593.7 | 7072.6 | -5122.6 | 11.6 |
| F-13 | 2 | 62 | 594.2 | 7082.3 | -5132.3 | 11.4 |
| F-13 | 2 | 62.5 | 594.7 | 7092.0 | -5142.0 | 10.7 |
| F-13 | 2 | 63 | 595.2 | 7101.7 | -5151.7 | 10.5 |
| F-13 | 2 | 63.5 | 595.7 | 7111.5 | -5161.5 | 11.6 |
| F-13 | 2 | 64 | 596.2 | 7121.2 | -5171.2 | 11.3 |
| F-13 | 2 | 64.5 | 596.7 | 7131.0 | -5181.0 | 12.1 |
| F-13 | 2 | 65 | 597.2 | 7140.8 | -5190.8 | 9.9 |
| F-13 | 2 | 65.5 | 597.7 | 7150.6 | -5200.6 | 9.4 |
| F-13 | 2 | 66 | 598.2 | 7160.4 | -5210.4 | 9.1 |
| F-13 | 2 | 66.5 | 598.7 | 7170.2 | -5220.2 | 8.7 |
| F-13 | 2 | 67 | 599.2 | 7180.1 | -5230.1 | 9.1 |
| F-13 | 2 | 67.5 | 599.7 | 7189.9 | -5239.9 | 8.7 |
| F-13 | 2 | 68 | 600.2 | 7199.8 | -5249.8 | 8.5 |
| F-13 | 2 | 68.5 | 600.7 | 7209.7 | -5259.7 | 9 |
| F-13 | 2 | 69 | 601.2 | 7219.6 | -5269.6 | 8.5 |
| F-13 | 2 | 69.5 | 601.7 | 7229.6 | -5279.6 | 8.1 |
| F-13 | 2 | 70 | 602.2 | 7239.5 | -5289.5 | 8 |
| F-13 | 2 | 70.5 | 602.7 | 7249.4 | -5299.4 | 7.8 |
| F-13 | 2 | 71 | 603.2 | 7259.4 | -5309.4 | 7.8 |
| F-13 | 2 | 71.5 | 603.7 | 7269.4 | -5319.4 | 8.3 |
| F-13 | 2 | 72 | 604.2 | 7279.4 | -5329.4 | 8.5 |
| F-13 | 2 | 72.5 | 604.7 | 7289.4 | -5339.4 | 8.3 |
| F-13 | 2 | 73 | 605.2 | 7299.4 | -5349.4 | 8.2 |
| F-13 | 2 | 73.5 | 605.7 | 7309.5 | -5359.5 | 9.1 |
| F-13 | 2 | 74 | 606.2 | 7319.6 | -5369.6 | 11.1 |
| F-13 | 2 | 74.5 | 606.7 | 7329.6 | -5379.6 | 10.4 |
| F-13 | 2 | 75 | 607.2 | 7339.7 | -5389.7 | 9.5 |
| F-13 | 2 | 75.5 | 607.7 | 7349.8 | -5399.8 | 9.3 |
| F-13 | 2 | 76 | 608.2 | 7360.0 | -5410.0 | 9.9 |
| F-13 | 2 | 76.5 | 608.7 | 7370.1 | -5420.1 | 11 |
| F-13 | 2 | 77 | 609.2 | 7380.2 | -5430.2 | 11.6 |
| F-13 | 2 | 77.5 | 609.7 | 7390.4 | -5440.4 | 12 |
| F-13 | 2 | 78 | 610.2 | 7400.6 | -5450.6 | 12.7 |
| F-13 | 2 | 78.5 | 610.7 | 7410.8 | -5460.8 | 12.9 |
| F-13 | 2 | 79 | 611.2 | 7421.0 | -5471.0 | 12.4 |
| F-13 | 2 | 79.5 | 611.7 | 7431.3 | -5481.3 | 10.6 |
| F-13 | 2 | 80 | 612.2 | 7441.5 | -5491.5 | 10.5 |

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|---|---|---|---|---|---|---|
| F-13 | 2 | 80.5 | 612.7 | 7451.8 | -5501.8 | 9.3 |
| F-13 | 2 | 81 | 613.2 | 7462.1 | -5512.1 | 8.7 |
| F-13 | 2 | 81.5 | 613.7 | 7472.4 | -5522.4 | 9.7 |
| F-13 | 2 | 82 | 614.2 | 7482.7 | -5532.7 | 10.2 |
| F-13 | 2 | 82.5 | 614.7 | 7493.0 | -5543.0 | 9.3 |
| F-13 | 2 | 83 | 615.2 | 7503.4 | -5553.4 | 9.1 |
| F-13 | 2 | 83.5 | 615.7 | 7513.7 | -5563.7 | 10.9 |
| F-13 | 2 | 84 | 616.2 | 7524.1 | -5574.1 | 11.4 |
| F-13 | 2 | 84.5 | 616.7 | 7534.5 | -5584.5 | 7.8 |
| F-13 | 2 | 85 | 617.2 | 7544.9 | -5594.9 | 9.5 |
| F-13 | 2 | 85.5 | 617.7 | 7555.4 | -5605.4 | 10.6 |
| F-13 | 2 | 86 | 618.2 | 7565.8 | -5615.8 | 11.1 |
| F-13 | 2 | 86.5 | 618.7 | 7576.3 | -5626.3 | 11.8 |
| F-13 | 2 | 87 | 619.2 | 7586.8 | -5636.8 | 11.8 |
| F-13 | 2 | 87.5 | 619.7 | 7597.3 | -5647.3 | 10.7 |
| F-13 | 2 | 88 | 620.2 | 7607.8 | -5657.8 | 10.3 |
| F-13 | 2 | 88.5 | 620.7 | 7618.3 | -5668.3 | 10.5 |
| F-13 | 2 | 89 | 621.2 | 7628.9 | -5678.9 | 11.1 |
| F-13 | 2 | 89.5 | 621.7 | 7639.5 | -5689.5 | 12.8 |
| F-13 | 2 | 90 | 622.2 | 7650.0 | -5700.0 | 12.6 |
| F-13 | 2 | 90.5 | 622.7 | 7660.6 | -5710.6 | 12.4 |
| F-13 | 2 | 91 | 623.2 | 7671.3 | -5721.3 | 11.4 |
| F-13 | 2 | 91.5 | 623.7 | 7681.9 | -5731.9 | 11.6 |
| F-13 | 2 | 92 | 624.2 | 7692.6 | -5742.6 | 11.6 |
| F-13 | 2 | 92.5 | 624.7 | 7703.2 | -5753.2 | 12.2 |
| F-13 | 2 | 93 | 625.2 | 7713.9 | -5763.9 | 11.8 |
| F-13 | 2 | 93.5 | 625.7 | 7724.6 | -5774.6 | 10.3 |
| F-13 | 2 | 94 | 626.2 | 7735.4 | -5785.4 | 8.1 |
| F-13 | 2 | 94.5 | 626.7 | 7746.1 | -5796.1 | 10.3 |
| F-13 | 2 | 95 | 627.2 | 7756.9 | -5806.9 | 11.8 |

## Appendix D: Composite Carbonate Isotopes

| Core | Drive | Mean Depth | Comp. Depth | Age BP | Age CE | δ$^{13}$C | δ$^{18}$O |
|---|---|---|---|---|---|---|---|
| D-13 | 1 | 0.25 | 0.25 | -63.1 | 2013.1 | -7.1 | -9.0 |
| D-13 | 1 | 1.25 | 1.25 | -63.4 | 2013.4 | -6.9 | -9.2 |
| D-13 | 1 | 2.25 | 2.25 | -63.6 | 2013.6 | -7.1 | -9.0 |
| D-13 | 1 | 3.25 | 3.25 | -63.7 | 2013.7 | -7.0 | -8.9 |
| D-13 | 1 | 4.25 | 4.25 | -63.7 | 2013.7 | -7.0 | -9.1 |
| D-13 | 1 | 5.25 | 5.25 | -63.6 | 2013.6 | -7.1 | -8.9 |
| D-13 | 1 | 6.25 | 6.25 | -63.4 | 2013.4 | -7.1 | -9.0 |
| D-13 | 1 | 7.25 | 7.25 | -63.1 | 2013.1 | -6.9 | -9.4 |
| D-13 | 1 | 8.25 | 8.25 | -62.7 | 2012.7 | -7.0 | -9.4 |
| D-13 | 1 | 9.25 | 9.25 | -62.2 | 2012.2 | -7.2 | -9.3 |
| D-13 | 1 | 10.25 | 10.25 | -61.6 | 2011.6 | -6.8 | -9.3 |
| D-13 | 1 | 11.25 | 11.25 | -60.8 | 2010.8 | -6.7 | -8.9 |
| D-13 | 1 | 12.25 | 12.25 | -60.0 | 2010.0 | -6.8 | -9.5 |
| D-13 | 1 | 13.25 | 13.25 | -59.1 | 2009.1 | -6.7 | -9.3 |
| D-13 | 1 | 14.25 | 14.25 | -58.0 | 2008.0 | -6.8 | -9.4 |
| D-13 | 1 | 15.25 | 15.25 | -56.9 | 2006.9 | -6.7 | -9.0 |
| D-13 | 1 | 16.25 | 16.25 | -55.7 | 2005.7 | -7.0 | -9.3 |
| D-13 | 1 | 17.25 | 17.25 | -54.4 | 2004.4 | -6.5 | -9.3 |
| D-13 | 1 | 18.25 | 18.25 | -52.9 | 2002.9 | -7.1 | -9.7 |
| D-13 | 1 | 19.25 | 19.25 | -51.4 | 2001.4 | -6.9 | -9.6 |
| D-13 | 1 | 20.25 | 20.25 | -49.8 | 1999.8 | -7.0 | -9.3 |
| D-13 | 1 | 21.25 | 21.25 | -48.1 | 1998.1 | -6.8 | -9.9 |
| D-13 | 1 | 22.25 | 22.25 | -46.3 | 1996.3 | -7.4 | -9.3 |
| D-13 | 1 | 23.25 | 23.25 | -44.3 | 1994.3 | -7.2 | -9.3 |
| D-13 | 1 | 24.25 | 24.25 | -42.3 | 1992.3 | -7.2 | -9.0 |
| D-13 | 1 | 24.75 | 24.75 | -41.3 | 1991.3 | missing | missing |
| D-13 | 1 | 25.25 | 25.25 | -40.2 | 1990.2 | -7.3 | -9.0 |
| D-13 | 1 | 25.75 | 25.75 | -39.2 | 1989.2 | missing | missing |
| D-13 | 1 | 26.25 | 26.25 | -38.1 | 1988.1 | -7.2 | -9.9 |
| D-13 | 1 | 27.25 | 27.25 | -35.8 | 1985.8 | -7.4 | -9.0 |
| D-13 | 1 | 28.25 | 28.25 | -33.4 | 1983.4 | -7.0 | -9.3 |
| D-13 | 1 | 29.25 | 29.25 | -30.9 | 1980.9 | -7.5 | -9.9 |
| D-13 | 1 | 29.75 | 29.75 | -29.7 | 1979.7 | missing | missing |
| D-13 | 1 | 30.25 | 30.25 | -28.4 | 1978.4 | -7.7 | -9.2 |
| D-13 | 1 | 31.25 | 31.25 | -25.7 | 1975.7 | -8.0 | -9.2 |
| D-13 | 1 | 32.25 | 32.25 | -23.0 | 1973.0 | -7.7 | -8.9 |
| D-13 | 1 | 32.75 | 32.75 | -21.6 | 1971.6 | missing | missing |
| D-13 | 1 | 33.25 | 33.25 | -20.1 | 1970.1 | -7.5 | -9.3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| D-13 | 1 | 33.75 | 33.75 | -18.7 | 1968.7 | missing | missing |
| D-13 | 1 | 34.25 | 34.25 | -17.2 | 1967.2 | -8.3 | -9.5 |
| D-13 | 1 | 35.25 | 35.25 | -14.2 | 1964.2 | -7.7 | -9.3 |
| D-13 | 1 | 36.25 | 36.25 | -11.1 | 1961.1 | -7.9 | -9.5 |
| D-13 | 1 | 36.75 | 36.75 | -9.5 | 1959.5 | missing | missing |
| D-13 | 1 | 37.25 | 37.25 | -7.9 | 1957.9 | -7.9 | -9.6 |
| D-13 | 1 | 37.75 | 37.75 | -6.3 | 1956.3 | missing | missing |
| D-13 | 1 | 38.25 | 38.25 | -4.6 | 1954.6 | -8.0 | -8.9 |
| D-13 | 1 | 39.25 | 39.25 | -1.3 | 1951.3 | -8.0 | -9.0 |
| D-13 | 1 | 40.25 | 40.25 | 2.2 | 1947.8 | -8.0 | -9.2 |
| D-13 | 1 | 41.25 | 41.25 | 5.7 | 1944.3 | -7.7 | -9.2 |
| D-13 | 1 | 42.25 | 42.25 | 9.3 | 1940.7 | -7.7 | -8.9 |
| D-13 | 1 | 42.75 | 42.75 | 11.2 | 1938.8 | missing | missing |
| D-13 | 1 | 43.25 | 43.25 | 13.1 | 1936.9 | -7.8 | -8.9 |
| D-13 | 1 | 43.75 | 43.75 | 14.9 | 1935.1 | missing | missing |
| D-13 | 1 | 44.25 | 44.25 | 16.8 | 1933.2 | -2.3 | -8.6 |
| D-13 | 1 | 45.25 | 45.25 | 20.7 | 1929.3 | -7.8 | -8.9 |
| D-13 | 1 | 46.25 | 46.25 | 24.7 | 1925.3 | -7.9 | -9.1 |
| D-13 | 1 | 46.75 | 46.75 | 26.7 | 1923.3 | missing | missing |
| D-13 | 1 | 47.25 | 47.25 | 28.7 | 1921.3 | -7.7 | -9.3 |
| D-13 | 1 | 47.75 | 47.75 | 30.8 | 1919.2 | missing | missing |
| D-13 | 1 | 48.25 | 48.25 | 32.8 | 1917.2 | -7.7 | -9.4 |
| D-13 | 1 | 49.25 | 49.25 | 37.0 | 1913.0 | -8.0 | -9.9 |
| D-13 | 1 | 50.25 | 50.25 | 41.3 | 1908.7 | -7.5 | -9.7 |
| D-13 | 1 | 51.25 | 51.25 | 45.7 | 1904.3 | -7.7 | -9.7 |
| D-13 | 1 | 52.25 | 52.25 | 50.1 | 1899.9 | -7.8 | -9.8 |
| D-13 | 1 | 52.75 | 52.75 | 52.4 | 1897.6 | missing | missing |
| D-13 | 1 | 53.25 | 53.25 | 54.7 | 1895.3 | -7.5 | -9.5 |
| D-13 | 1 | 53.75 | 53.75 | 57.0 | 1893.0 | missing | missing |
| D-13 | 1 | 54.25 | 54.25 | 59.3 | 1890.7 | -7.8 | -10.0 |
| D-13 | 1 | 55.25 | 55.25 | 64.0 | 1886.0 | -7.3 | -10.1 |
| D-13 | 1 | 56.25 | 56.25 | 68.7 | 1881.3 | -7.8 | -10.0 |
| D-13 | 1 | 56.75 | 56.75 | 71.1 | 1878.9 | missing | missing |
| D-13 | 1 | 57.25 | 57.25 | 73.6 | 1876.4 | -7.5 | -9.8 |
| D-13 | 1 | 57.75 | 57.75 | 76.0 | 1874.0 | missing | missing |
| D-13 | 1 | 58.25 | 58.25 | 78.5 | 1871.5 | -7.9 | -10.3 |
| D-13 | 1 | 59.25 | 59.25 | 83.5 | 1866.5 | -7.6 | -8.8 |
| D-13 | 1 | 60.25 | 60.25 | 88.6 | 1861.4 | -2.0 | -8.8 |
| D-13 | 1 | 61.25 | 61.25 | 93.7 | 1856.3 | -5.3 | -10.2 |
| D-13 | 1 | 62.25 | 62.25 | 98.9 | 1851.1 | -6.0 | -8.8 |
| D-13 | 1 | 62.75 | 62.75 | 101.6 | 1848.4 | missing | missing |

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|---|---|---|---|---|---|---|---|
| D-13 | 1 | 63.25 | 63.25 | 104.2 | 1845.8 | -4.9 | -9.3 |
| D-13 | 1 | 63.75 | 63.75 | 106.9 | 1843.1 | missing | missing |
| D-13 | 1 | 64.25 | 64.25 | 109.6 | 1840.4 | missing | missing |
| D-13 | 1 | 65.25 | 65.25 | 115.1 | 1834.9 | missing | missing |
| D-13 | 1 | 66.25 | 66.25 | 120.6 | 1829.4 | missing | missing |
| D-13 | 1 | 66.75 | 66.75 | 123.4 | 1826.6 | missing | missing |
| D-13 | 1 | 67.25 | 67.25 | 126.2 | 1823.8 | missing | missing |
| D-13 | 1 | 67.75 | 67.75 | 129.0 | 1821.0 | missing | missing |
| D-13 | 1 | 68.25 | 68.25 | 131.8 | 1818.2 | missing | missing |
| D-13 | 1 | 69.25 | 69.25 | 137.6 | 1812.4 | missing | missing |
| D-13 | 1 | 70.25 | 70.25 | 143.4 | 1806.6 | missing | missing |
| D-13 | 1 | 71.25 | 71.25 | 149.3 | 1800.7 | missing | missing |
| D-13 | 1 | 72.25 | 72.25 | 155.2 | 1794.8 | missing | missing |
| D-13 | 1 | 72.75 | 72.75 | 158.2 | 1791.8 | missing | missing |
| D-13 | 1 | 73.25 | 73.25 | 161.3 | 1788.7 | missing | missing |
| D-13 | 2 | 24.25 | 73.45 | 162.5 | 1787.5 | missing | missing |
| D-13 | 2 | 24.75 | 73.95 | 165.5 | 1784.5 | -9.5 | -10.7 |
| D-13 | 2 | 25.25 | 74.45 | 168.6 | 1781.4 | -9.3 | -8.0 |
| D-13 | 2 | 25.75 | 74.95 | 171.7 | 1778.3 | -8.6 | -9.5 |
| D-13 | 2 | 26.25 | 75.45 | 174.8 | 1775.2 | -10.3 | -10.0 |
| D-13 | 2 | 26.75 | 75.95 | 177.9 | 1772.1 | -8.1 | -9.5 |
| D-13 | 2 | 27.25 | 76.45 | 181.0 | 1769.0 | missing | missing |
| D-13 | 2 | 27.75 | 76.95 | 184.2 | 1765.8 | missing | missing |
| D-13 | 2 | 28.25 | 77.45 | 187.3 | 1762.7 | -9.3 | -9.7 |
| D-13 | 2 | 28.75 | 77.95 | 190.5 | 1759.5 | -9.6 | -11.7 |
| D-13 | 2 | 29.25 | 78.45 | 193.7 | 1756.3 | missing | missing |
| D-13 | 2 | 29.75 | 78.95 | 196.9 | 1753.1 | missing | missing |
| D-13 | 2 | 30.25 | 79.45 | 200.1 | 1749.9 | -9.2 | -9.5 |
| D-13 | 2 | 30.75 | 79.95 | 203.4 | 1746.6 | -8.7 | -9.8 |
| D-13 | 2 | 31.25 | 80.45 | 206.7 | 1743.3 | -9.0 | -8.5 |
| D-13 | 2 | 31.75 | 80.95 | 209.9 | 1740.1 | -8.8 | -10.3 |
| D-13 | 2 | 32.25 | 81.45 | 213.2 | 1736.8 | missing | missing |
| D-13 | 2 | 32.75 | 81.95 | 216.6 | 1733.4 | -8.0 | -9.1 |
| D-13 | 2 | 33.25 | 82.45 | 219.9 | 1730.1 | -10.2 | -9.6 |
| D-13 | 2 | 33.75 | 82.95 | 223.2 | 1726.8 | -8.4 | -9.1 |
| D-13 | 2 | 34.25 | 83.45 | 226.6 | 1723.4 | -10.2 | -11.4 |
| D-13 | 2 | 34.75 | 83.95 | 230.0 | 1720.0 | -9.2 | -9.8 |
| D-13 | 2 | 35.25 | 84.45 | 233.4 | 1716.6 | missing | missing |
| D-13 | 2 | 35.75 | 84.95 | 236.8 | 1713.2 | missing | missing |
| D-13 | 2 | 36.25 | 85.45 | 240.2 | 1709.8 | -9.1 | -9.1 |
| D-13 | 2 | 36.75 | 85.95 | 243.7 | 1706.3 | -10.2 | -9.6 |

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|---|---|---|---|---|---|---|---|
| D-13 | 2 | 37.25 | 86.45 | 247.1 | 1702.9 | -12.4 | -10.4 |
| D-13 | 2 | 37.75 | 86.95 | 250.6 | 1699.4 | -12.1 | -10.3 |
| D-13 | 2 | 38.25 | 87.45 | 254.1 | 1695.9 | -13.5 | -13.1 |
| D-13 | 2 | 38.75 | 87.95 | 257.6 | 1692.4 | -12.2 | -10.8 |
| D-13 | 2 | 39.25 | 88.45 | 261.2 | 1688.8 | -10.9 | -12.8 |
| D-13 | 2 | 39.75 | 88.95 | 264.7 | 1685.3 | -14.2 | -12.3 |
| D-13 | 2 | 40.25 | 89.45 | 268.3 | 1681.7 | -12.5 | -10.5 |
| D-13 | 2 | 40.75 | 89.95 | 271.8 | 1678.2 | -9.2 | -10.5 |
| D-13 | 2 | 41.25 | 90.45 | 275.4 | 1674.6 | -13.5 | -11.6 |
| D-13 | 2 | 41.75 | 90.95 | 279.0 | 1671.0 | -9.4 | -9.5 |
| D-13 | 2 | 42.25 | 91.45 | 282.6 | 1667.4 | -13.9 | -13.3 |
| D-13 | 2 | 42.75 | 91.95 | 286.3 | 1663.7 | -15.4 | -13.3 |
| D-13 | 2 | 43.25 | 92.45 | 289.9 | 1660.1 | -12.3 | -12.1 |
| D-13 | 2 | 43.75 | 92.95 | 293.6 | 1656.4 | -13.8 | -11.6 |
| D-13 | 2 | 44.25 | 93.45 | 297.3 | 1652.7 | -10.4 | -13.8 |
| D-13 | 2 | 44.75 | 93.95 | 301.0 | 1649.0 | -12.0 | -11.8 |
| D-13 | 2 | 45.25 | 94.45 | 304.7 | 1645.3 | -9.5 | -11.6 |
| D-13 | 2 | 45.75 | 94.95 | 308.4 | 1641.6 | -12.5 | -12.4 |
| D-13 | 2 | 46.25 | 95.45 | 312.1 | 1637.9 | -10.2 | -12.3 |
| D-13 | 2 | 46.75 | 95.95 | 315.9 | 1634.1 | -10.1 | -11.2 |
| D-13 | 2 | 47.25 | 96.45 | 319.7 | 1630.3 | -10.3 | -12.3 |
| D-13 | 2 | 47.75 | 96.95 | 323.5 | 1626.5 | -12.8 | -11.0 |
| D-13 | 2 | 48.25 | 97.45 | 327.3 | 1622.7 | missing | missing |
| D-13 | 2 | 48.75 | 97.95 | 331.1 | 1618.9 | -13.5 | -11.7 |
| D-13 | 2 | 49.25 | 98.45 | 334.9 | 1615.1 | -12.4 | -14.7 |
| D-13 | 2 | 49.75 | 98.95 | 338.8 | 1611.2 | missing | missing |
| D-13 | 2 | 50.25 | 99.45 | 342.6 | 1607.4 | -12.2 | -12.1 |
| D-13 | 2 | 50.75 | 99.95 | 346.5 | 1603.5 | -13.3 | -11.4 |
| D-13 | 2 | 51.25 | 100.45 | 350.4 | 1599.6 | -11.9 | -13.3 |
| D-13 | 2 | 51.75 | 100.95 | 354.3 | 1595.7 | -11.5 | -11.0 |
| D-13 | 2 | 52.25 | 101.45 | 358.2 | 1591.8 | -12.8 | -13.0 |
| D-13 | 2 | 52.75 | 101.95 | 362.1 | 1587.9 | -13.4 | -12.2 |
| D-13 | 2 | 53.25 | 102.45 | 366.1 | 1583.9 | -12.9 | -12.0 |
| D-13 | 2 | 53.75 | 102.95 | 370.0 | 1580.0 | -10.8 | -11.5 |
| D-13 | 2 | 54.25 | 103.45 | 374.0 | 1576.0 | -11.1 | -13.6 |
| D-13 | 2 | 54.75 | 103.95 | 378.0 | 1572.0 | -10.0 | -11.1 |
| D-13 | 2 | 55.25 | 104.45 | 382.0 | 1568.0 | missing | missing |
| D-13 | 2 | 55.75 | 104.95 | 386.0 | 1564.0 | -10.4 | -11.1 |
| D-13 | 2 | 56.25 | 105.45 | 390.1 | 1559.9 | -11.3 | -14.0 |
| D-13 | 2 | 56.75 | 105.95 | 394.1 | 1555.9 | missing | missing |
| D-13 | 2 | 57.25 | 106.45 | 398.2 | 1551.8 | missing | missing |

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|---|---|---|---|---|---|---|---|
| D-13 | 2 | 57.75 | 106.95 | 402.2 | 1547.8 | -13.4 | -12.5 |
| D-13 | 2 | 58.25 | 107.45 | 406.3 | 1543.7 | -10.0 | -9.3 |
| D-13 | 2 | 58.75 | 107.95 | 410.4 | 1539.6 | missing | missing |
| D-13 | 2 | 59.25 | 108.45 | 414.6 | 1535.4 | -7.6 | -9.5 |
| D-13 | 2 | 59.75 | 108.95 | 418.7 | 1531.3 | missing | missing |
| D-13 | 2 | 60.25 | 109.45 | 422.8 | 1527.2 | missing | missing |
| D-13 | 2 | 60.75 | 109.95 | 427.0 | 1523.0 | missing | missing |
| D-13 | 2 | 61.25 | 110.45 | 431.1 | 1518.9 | -10.2 | -12.0 |
| D-13 | 2 | 61.75 | 110.95 | 435.3 | 1514.7 | -10.8 | -11.2 |
| D-13 | 2 | 62.25 | 111.45 | 439.5 | 1510.5 | -9.4 | -11.7 |
| D-13 | 2 | 62.75 | 111.95 | 443.7 | 1506.3 | missing | missing |
| D-13 | 2 | 63.25 | 112.45 | 448.0 | 1502.0 | missing | missing |
| D-13 | 2 | 63.75 | 112.95 | 452.2 | 1497.8 | missing | missing |
| D-13 | 2 | 64.25 | 113.45 | 456.4 | 1493.6 | -11.4 | -11.5 |
| D-13 | 2 | 64.75 | 113.95 | 460.7 | 1489.3 | -12.8 | -12.3 |
| D-13 | 2 | 65.25 | 114.45 | 465.0 | 1485.0 | -15.7 | -14.1 |
| D-13 | 2 | 65.75 | 114.95 | 469.3 | 1480.7 | missing | missing |
| D-13 | 2 | 66.25 | 115.45 | 473.6 | 1476.4 | -9.4 | -11.2 |
| D-13 | 2 | 66.75 | 115.95 | 477.9 | 1472.1 | missing | missing |
| D-13 | 2 | 67.25 | 116.45 | 482.2 | 1467.8 | -11.7 | -12.2 |
| D-13 | 2 | 67.75 | 116.95 | 486.6 | 1463.4 | -13.7 | -12.3 |
| D-13 | 2 | 68.25 | 117.45 | 490.9 | 1459.1 | -18.1 | -14.8 |
| D-13 | 2 | 68.75 | 117.95 | 495.3 | 1454.7 | -18.7 | -16.4 |
| D-13 | 2 | 69.25 | 118.45 | 499.7 | 1450.3 | -14.9 | -13.4 |
| D-13 | 2 | 69.75 | 118.95 | 504.0 | 1446.0 | -22.5 | -14.2 |
| D-13 | 2 | 70.25 | 119.45 | 508.5 | 1441.5 | -15.0 | -15.3 |
| D-13 | 2 | 71.25 | 120.45 | 517.3 | 1432.7 | -13.9 | -15.2 |
| D-13 | 2 | 72.25 | 121.45 | 526.2 | 1423.8 | -17.2 | -15.5 |
| D-13 | 2 | 73.25 | 122.45 | 535.1 | 1414.9 | -15.0 | -15.3 |
| D-13 | 2 | 74.25 | 123.45 | 544.1 | 1405.9 | -12.3 | -14.1 |
| D-13 | 2 | 75.25 | 124.45 | 553.2 | 1396.8 | missing | missing |
| D-13 | 2 | 76.25 | 125.45 | 562.3 | 1387.7 | -9.5 | -11.6 |
| D-13 | 2 | 77.25 | 126.45 | 571.4 | 1378.6 | -10.8 | -9.4 |
| D-13 | 2 | 78.25 | 127.45 | 580.6 | 1369.4 | -17.0 | -17.8 |
| D-13 | 2 | 79.25 | 128.45 | 589.8 | 1360.2 | -10.3 | -10.2 |
| D-13 | 2 | 80.25 | 129.45 | 599.1 | 1350.9 | -15.8 | *-17.5* |
| D-13 | 2 | 81.25 | 130.45 | 608.4 | 1341.6 | -8.7 | -10.3 |
| D-13 | 2 | 82.25 | 131.45 | 617.8 | 1332.2 | -8.9 | -10.2 |
| D-13 | 2 | 83.25 | 132.45 | 627.2 | 1322.8 | -9.2 | -10.2 |
| D-13 | 2 | 84.25 | 133.45 | 636.7 | 1313.3 | -10.9 | -12.4 |
| D-13 | 2 | 85.25 | 134.45 | 646.2 | 1303.8 | -10.0 | -10.7 |

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|---|---|---|---|---|---|---|---|
| D-13 | 2 | 86.25 | 135.45 | 655.8 | 1294.2 | -15.2 | -13.2 |
| D-13 | 3 | 17.25 | 137.25 | 673.1 | 1276.9 | -11.5 | -10.4 |
| D-13 | 3 | 18.25 | 138.25 | 682.8 | 1267.2 | -14.4 | -11.6 |
| D-13 | 3 | 19.25 | 139.25 | 692.5 | 1257.5 | -10.3 | -10.5 |
| D-13 | 3 | 20.25 | 140.25 | 702.3 | 1247.7 | -11.8 | -13.0 |
| D-13 | 3 | 21.25 | 141.25 | 712.1 | 1237.9 | -15.8 | -12.5 |
| D-13 | 3 | 22.25 | 142.25 | 721.9 | 1228.1 | -18.1 | -15.8 |
| D-13 | 3 | 23.25 | 143.25 | 731.8 | 1218.2 | -15.7 | -12.7 |
| D-13 | 3 | 24.25 | 144.25 | 741.7 | 1208.3 | -18.8 | -15.0 |
| D-13 | 3 | 25.25 | 145.25 | 751.7 | 1198.3 | -13.5 | -12.2 |
| D-13 | 3 | 26.25 | 146.25 | 761.7 | 1188.3 | missing | missing |
| D-13 | 3 | 27.25 | 147.25 | 771.8 | 1178.2 | -6.0 | -9.3 |
| D-13 | 3 | 28.25 | 148.25 | 781.9 | 1168.1 | -9.2 | -10.3 |
| D-13 | 3 | 29.25 | 149.25 | 792.0 | 1158.0 | -3.6 | -8.6 |
| D-13 | 3 | 30.25 | 150.25 | 802.2 | 1147.8 | -11.0 | -10.9 |
| D-13 | 3 | 31.25 | 151.25 | 812.4 | 1137.6 | -3.8 | -8.4 |
| D-13 | 3 | 32.25 | 152.25 | 822.7 | 1127.3 | -5.6 | -9.9 |
| D-13 | 3 | 33.25 | 153.25 | 833.0 | 1117.0 | -9.7 | -11.4 |
| D-13 | 3 | 34.25 | 154.25 | 843.3 | 1106.7 | missing | missing |
| D-13 | 3 | 35.25 | 155.25 | 853.7 | 1096.3 | -5.8 | -8.9 |
| D-13 | 3 | 36.25 | 156.25 | 864.1 | 1085.9 | -4.9 | -7.9 |
| D-13 | 3 | 37.25 | 157.25 | 874.5 | 1075.5 | -9.8 | -10.8 |
| D-13 | 3 | 38.25 | 158.25 | 885.0 | 1065.0 | -9.3 | -10.0 |
| D-13 | 3 | 39.25 | 159.25 | 895.5 | 1054.5 | -8.5 | -9.5 |
| D-13 | 3 | 40.25 | 160.25 | 906.1 | 1043.9 | -7.7 | -9.0 |
| D-13 | 3 | 41.25 | 161.25 | 916.7 | 1033.3 | -7.8 | -8.7 |
| D-13 | 3 | 42.25 | 162.25 | 927.3 | 1022.7 | -5.3 | -7.7 |
| D-13 | 3 | 43.25 | 163.25 | 938.0 | 1012.0 | missing | missing |
| D-13 | 3 | 44.25 | 164.25 | 948.7 | 1001.3 | -5.1 | -7.6 |
| D-13 | 3 | 45.25 | 165.25 | 959.4 | 990.6 | -5.9 | -8.5 |
| D-13 | 3 | 46.25 | 166.25 | 970.2 | 979.8 | missing | missing |
| D-13 | 3 | 47.25 | 167.25 | 981.0 | 969.0 | -5.8 | -8.7 |
| D-13 | 3 | 48.25 | 168.25 | 991.8 | 958.2 | -8.3 | -10.5 |
| D-13 | 3 | 49.25 | 169.25 | 1002.7 | 947.3 | -8.9 | -11.2 |
| D-13 | 3 | 50.25 | 170.25 | 1013.6 | 936.4 | -11.3 | -13.8 |
| D-13 | 3 | 51.25 | 171.25 | 1024.5 | 925.5 | -9.0 | -10.5 |
| D-13 | 3 | 52.25 | 172.25 | 1035.5 | 914.5 | -16.3 | -14.8 |
| D-13 | 3 | 53.25 | 173.25 | 1046.5 | 903.5 | -14.2 | -14.6 |
| D-13 | 3 | 54.25 | 174.25 | 1057.6 | 892.4 | -14.5 | -12.9 |
| D-13 | 3 | 55.25 | 175.25 | 1068.6 | 881.4 | -9.7 | -11.0 |
| D-13 | 3 | 56.25 | 176.25 | 1079.7 | 870.3 | -9.9 | -10.5 |

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|---|---|---|---|---|---|---|---|
| D-13 | 3 | 57.25 | 177.25 | 1090.8 | 859.2 | -11.2 | -11.0 |
| D-13 | 3 | 58.25 | 178.25 | 1102.0 | 848.0 | -9.8 | -11.0 |
| D-13 | 3 | 59.25 | 179.25 | 1113.2 | 836.8 | -8.5 | -10.2 |
| D-13 | 3 | 60.25 | 180.25 | 1124.4 | 825.6 | -8.1 | -10.6 |
| D-13 | 3 | 61.25 | 181.25 | 1135.7 | 814.3 | -7.3 | -9.5 |
| D-13 | 3 | 62.25 | 182.25 | 1146.9 | 803.1 | -5.5 | -8.1 |
| D-13 | 3 | 63.25 | 183.25 | 1158.3 | 791.7 | -7.4 | -9.3 |
| D-13 | 3 | 64.25 | 184.25 | 1169.6 | 780.4 | -8.4 | -9.6 |
| D-13 | 3 | 65.25 | 185.25 | 1181.0 | 769.0 | -5.8 | -9.4 |
| D-13 | 3 | 66.25 | 186.25 | 1192.4 | 757.6 | -4.1 | -10.4 |
| D-13 | 3 | 67.25 | 187.25 | 1203.8 | 746.2 | -3.9 | -8.6 |
| D-13 | 3 | 68.25 | 188.25 | 1215.2 | 734.8 | -3.3 | -8.0 |
| D-13 | 3 | 69.25 | 189.25 | 1226.7 | 723.3 | -4.0 | -8.6 |
| D-13 | 3 | 70.25 | 190.25 | 1238.2 | 711.8 | -6.1 | -9.6 |
| D-13 | 3 | 71.25 | 191.25 | 1249.8 | 700.2 | -10.0 | -10.7 |
| D-13 | 3 | 72.25 | 192.25 | 1261.3 | 688.7 | -6.0 | -9.7 |
| D-13 | 3 | 73.25 | 193.25 | 1272.9 | 677.1 | -4.6 | -9.2 |
| D-13 | 3 | 74.25 | 194.25 | 1284.6 | 665.4 | -4.7 | -9.2 |
| D-13 | 3 | 75.25 | 195.25 | 1296.2 | 653.8 | -3.9 | -10.3 |
| D-13 | 3 | 76.25 | 196.25 | 1307.9 | 642.1 | -9.6 | -12.4 |
| D-13 | 3 | 77.25 | 197.25 | 1319.6 | 630.4 | -5.6 | -9.6 |
| D-13 | 3 | 78.25 | 198.25 | 1331.3 | 618.7 | -7.6 | -9.4 |
| D-13 | 3 | 79.25 | 199.25 | 1343.0 | 607.0 | -7.4 | -9.4 |
| D-13 | 3 | 80.25 | 200.25 | 1354.8 | 595.2 | -6.9 | -10.4 |
| D-13 | 3 | 81.25 | 201.25 | 1366.6 | 583.4 | -4.7 | -9.9 |
| D-13 | 3 | 82.25 | 202.25 | 1378.4 | 571.6 | -6.1 | -8.9 |
| D-13 | 3 | 83.25 | 203.25 | 1390.3 | 559.7 | -6.2 | -9.0 |
| D-13 | 3 | 84.25 | 204.25 | 1402.1 | 547.9 | -8.9 | -11.3 |
| D-13 | 3 | 85.25 | 205.25 | 1414.0 | 536.0 | -7.7 | -9.7 |
| D-13 | 3 | 86.25 | 206.25 | 1426.0 | 524.0 | -8.9 | -11.7 |
| D-13 | 3 | 87.25 | 207.25 | 1437.9 | 512.1 | -6.2 | *-9.2* |
| D-13 | 3 | 88.25 | 208.25 | 1449.9 | 500.1 | -9.9 | -12.4 |
| D-13 | 4 | 19.25 | 208.45 | 1452.3 | 497.7 | -6.9 | -9.4 |
| D-13 | 4 | 20.25 | 209.45 | 1464.2 | 485.8 | -10.0 | -11.6 |
| D-13 | 4 | 21.25 | 210.45 | 1476.3 | 473.7 | -8.4 | -10.6 |
| D-13 | 4 | 22.25 | 211.45 | 1488.3 | 461.7 | -6.3 | -10.6 |
| D-13 | 4 | 23.25 | 212.45 | 1500.4 | 449.6 | -11.1 | -10.7 |
| D-13 | 4 | 24.25 | 213.45 | 1512.4 | 437.6 | -5.4 | -7.9 |
| D-13 | 4 | 25.25 | 214.45 | 1524.5 | 425.5 | -10.3 | -12.0 |
| D-13 | 4 | 26.25 | 215.45 | 1536.7 | 413.3 | -9.3 | -10.2 |
| D-13 | 4 | 27.25 | 216.45 | 1548.8 | 401.2 | -5.0 | -8.6 |

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|---|---|---|---|---|---|---|---|
| D-13 | 4 | 28.25 | 217.45 | 1561.0 | 389.0 | -8.2 | -11.4 |
| D-13 | 4 | 29.25 | 218.45 | 1573.2 | 376.8 | -8.5 | -10.3 |
| D-13 | 4 | 30.25 | 219.45 | 1585.4 | 364.6 | -6.8 | -10.0 |
| D-13 | 4 | 31.25 | 220.45 | 1597.6 | 352.4 | -7.3 | -11.1 |
| D-13 | 4 | 32.25 | 221.45 | 1609.9 | 340.1 | -12.1 | -13.8 |
| D-13 | 4 | 33.25 | 222.45 | 1622.1 | 327.9 | -11.4 | -10.7 |
| D-13 | 4 | 34.25 | 223.45 | 1634.4 | 315.6 | -9.2 | -10.4 |
| D-13 | 4 | 35.25 | 224.45 | 1646.7 | 303.3 | -9.8 | -11.1 |
| D-13 | 4 | 36.25 | 225.45 | 1659.0 | 291.0 | -8.2 | -11.0 |
| D-13 | 4 | 37.25 | 226.45 | 1671.4 | 278.6 | -7.2 | -9.6 |
| D-13 | 4 | 38.25 | 227.45 | 1683.8 | 266.2 | missing | missing |
| D-13 | 4 | 39.25 | 228.45 | 1696.1 | 253.9 | -14.6 | -12.8 |
| D-13 | 4 | 40.25 | 229.45 | 1708.5 | 241.5 | -9.6 | -10.7 |
| D-13 | 4 | 41.25 | 230.45 | 1721.0 | 229.0 | missing | missing |
| D-13 | 4 | 42.25 | 231.45 | 1733.4 | 216.6 | -6.8 | -10.7 |
| D-13 | 4 | 43.25 | 232.45 | 1745.9 | 204.1 | -10.4 | -11.2 |
| D-13 | 4 | 44.25 | 233.45 | 1758.3 | 191.7 | -6.8 | -11.0 |
| D-13 | 4 | 45.25 | 234.45 | 1770.8 | 179.2 | -9.1 | -14.5 |
| D-13 | 4 | 46.25 | 235.45 | 1783.3 | 166.7 | missing | missing |
| D-13 | 4 | 47.25 | 236.45 | 1795.9 | 154.1 | -12.3 | -9.5 |
| D-13 | 4 | 48.25 | 237.45 | 1808.4 | 141.6 | -14.1 | -12.4 |
| D-13 | 4 | 49.25 | 238.45 | 1821.0 | 129.0 | -11.6 | -12.0 |
| D-13 | 4 | 50.25 | 239.45 | 1833.5 | 116.5 | -12.5 | -15.0 |
| D-13 | 4 | 51.25 | 240.45 | 1846.1 | 103.9 | -11.2 | -10.8 |
| D-13 | 4 | 52.25 | 241.45 | 1858.7 | 91.3 | missing | missing |
| D-13 | 4 | 53.25 | 242.45 | 1871.4 | 78.6 | -11.9 | -12.5 |
| D-13 | 4 | 54.25 | 243.45 | 1884.0 | 66.0 | -11.6 | -12.9 |
| D-13 | 4 | 55.25 | 244.45 | 1896.7 | 53.3 | -15.8 | -14.9 |
| D-13 | 4 | 56.25 | 245.45 | 1909.3 | 40.7 | -14.2 | -11.6 |
| D-13 | 4 | 57.25 | 246.45 | 1922.0 | 28.0 | -9.3 | -9.8 |
| D-13 | 4 | 58.25 | 247.45 | 1934.7 | 15.3 | -10.3 | -11.5 |
| D-13 | 4 | 59.25 | 248.45 | 1947.5 | 2.5 | -8.3 | -11.5 |
| D-13 | 4 | 60.25 | 249.45 | 1960.2 | -10.2 | -6.6 | -10.1 |
| D-13 | 4 | 61.25 | 250.45 | 1972.9 | -22.9 | -10.4 | -9.3 |
| D-13 | 4 | 62.25 | 251.45 | 1985.7 | -35.7 | -8.0 | -10.1 |
| D-13 | 4 | 63.25 | 252.45 | 1998.5 | -48.5 | -7.3 | -9.1 |
| D-13 | 4 | 64.25 | 253.45 | 2011.3 | -61.3 | -7.4 | -8.8 |
| D-13 | 4 | 65.25 | 254.45 | 2024.1 | -74.1 | -7.9 | -9.1 |
| D-13 | 4 | 66.25 | 255.45 | 2036.9 | -86.9 | missing | missing |
| D-13 | 4 | 67.25 | 256.45 | 2049.7 | -99.7 | -10.5 | -10.4 |
| D-13 | 4 | 68.25 | 257.45 | 2062.6 | -112.6 | missing | missing |

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|---|---|---|---|---|---|---|---|
| D-13 | 4 | 69.25 | 258.45 | 2075.4 | -125.4 | -10.4 | -10.4 |
| D-13 | 4 | 70.25 | 259.45 | 2088.3 | -138.3 | -12.0 | -11.4 |
| D-13 | 4 | 71.25 | 260.45 | 2101.2 | -151.2 | -10.2 | -10.0 |
| D-13 | 4 | 72.25 | 261.45 | 2114.1 | -164.1 | -12.5 | -11.8 |
| D-13 | 4 | 73.25 | 262.45 | 2127.0 | -177.0 | -9.9 | -11.5 |
| D-13 | 4 | 74.25 | 263.45 | 2139.9 | -189.9 | -10.1 | -10.9 |
| D-13 | 4 | 75.25 | 264.45 | 2152.9 | -202.9 | -8.3 | -9.6 |
| D-13 | 4 | 76.25 | 265.45 | 2165.8 | -215.8 | -9.1 | -8.9 |
| D-13 | 4 | 77.25 | 266.45 | 2178.8 | -228.8 | -9.0 | -9.8 |
| D-13 | 4 | 78.25 | 267.45 | 2191.8 | -241.8 | missing | missing |
| D-13 | 4 | 79.25 | 268.45 | 2204.7 | -254.7 | missing | missing |
| D-13 | 4 | 80.25 | 269.45 | 2217.7 | -267.7 | -8.8 | -9.3 |
| D-13 | 4 | 81.25 | 270.45 | 2230.7 | -280.7 | -8.8 | -9.3 |

## Appendix E: Composite Grain Size

| AD/BC | %Clay | %Silt | %Sand | Clay Flux | Silt Flux | Sand Flux |
|---|---|---|---|---|---|---|
| 2009 | 8.2 | 86.61 | 5.19 | 0.0098 | 0.1033 | 0.0062 |
| 2004 | 23.28 | 76.32 | 0.41 | 0.0269 | 0.0882 | 0.0005 |
| 1999 | 20.46 | 64.58 | 14.96 | 0.0233 | 0.0734 | 0.017 |
| 1994 | 11.69 | 56.99 | 31.32 | 0.0149 | 0.0727 | 0.04 |
| 1989 | 17.86 | 77.77 | 4.37 | 0.0208 | 0.0906 | 0.0051 |
| 1984 | 18.03 | 62.7 | 19.27 | 0.0226 | 0.0785 | 0.0241 |
| 1979 | 20.41 | 56.17 | 23.42 | 0.0266 | 0.0733 | 0.0306 |
| 1974 | 23.1 | 74.99 | 1.9 | 0.0306 | 0.0994 | 0.0025 |
| 1969 | 20.54 | 69.12 | 10.34 | 0.0265 | 0.0893 | 0.0134 |
| 1964 | 19.25 | 68.27 | 12.48 | 0.0224 | 0.0795 | 0.0145 |
| 1959 | 27.89 | 61.38 | 10.73 | 0.0392 | 0.0863 | 0.0151 |
| 1954 | 28.72 | 63.1 | 8.17 | 0.0387 | 0.085 | 0.011 |
| 1949 | 23.36 | 74.14 | 2.5 | 0.0254 | 0.0806 | 0.0027 |
| 1944 | 25.32 | 64.63 | 10.05 | 0.0257 | 0.0655 | 0.0102 |
| 1939 | 21.81 | 64.87 | 13.32 | 0.0229 | 0.0681 | 0.014 |
| 1934 | 19.03 | 63.56 | 17.41 | 0.021 | 0.0702 | 0.0192 |
| 1929 | 15.03 | 63.31 | 21.65 | 0.0164 | 0.0689 | 0.0236 |
| 1924 | 29.63 | 69.35 | 1.02 | 0.0325 | 0.076 | 0.0011 |
| 1919 | 24.01 | 68.72 | 7.27 | 0.027 | 0.0774 | 0.0082 |
| 1914 | 16.67 | 72.95 | 10.38 | 0.019 | 0.0831 | 0.0118 |
| 1909 | 17.78 | 72.74 | 9.48 | 0.0203 | 0.0829 | 0.0108 |
| 1904 | 13.06 | 67.35 | 19.59 | 0.0148 | 0.0765 | 0.0223 |
| 1899 | 12.75 | 60.13 | 27.12 | 0.015 | 0.0706 | 0.0319 |
| 1894 | 8.46 | 42.96 | 48.58 | 0.0101 | 0.0512 | 0.0579 |
| 1889 | 21.57 | 72.37 | 6.07 | 0.0223 | 0.0748 | 0.0063 |
| 1884 | 19.6 | 67.41 | 12.99 | 0.0186 | 0.0639 | 0.0123 |
| 1879 | 15.47 | 58.65 | 25.88 | 0.016 | 0.0608 | 0.0268 |
| 1874 | 14.64 | 54.42 | 30.94 | 0.0154 | 0.0572 | 0.0325 |
| 1869 | 17.7 | 61.46 | 20.85 | 0.0177 | 0.0614 | 0.0208 |
| 1864 | 8.93 | 41.72 | 49.35 | 0.0091 | 0.0423 | 0.05 |
| 1859 | 9.26 | 44.78 | 45.96 | 0.0096 | 0.0466 | 0.0478 |
| 1854 | 17.49 | 77.13 | 5.38 | 0.0187 | 0.0824 | 0.0057 |
| 1849 | 11.87 | 54.94 | 33.19 | 0.0128 | 0.0592 | 0.0357 |
| 1844 | 17.26 | 70.91 | 11.83 | 0.0196 | 0.0805 | 0.0134 |
| 1839 | 17.3 | 68.48 | 14.22 | 0.0203 | 0.0801 | 0.0166 |
| 1834 | 15.01 | 57.34 | 27.64 | 0.0166 | 0.0634 | 0.0306 |
| 1829 | 14.9 | 52.14 | 32.96 | 0.0153 | 0.0535 | 0.0338 |
| 1824 | 15.98 | 54.65 | 29.37 | 0.0166 | 0.0567 | 0.0305 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1819 | 14.06 | 63.96 | 21.98 | 0.0144 | 0.0656 | 0.0225 |
| 1814 | 14.46 | 68.6 | 16.94 | 0.0133 | 0.0629 | 0.0155 |
| 1809 | 15.74 | 71.59 | 12.67 | 0.0125 | 0.0569 | 0.0101 |
| 1804 | 16.93 | 73.9 | 9.17 | 0.014 | 0.0612 | 0.0076 |
| 1799 | 17.82 | 73.63 | 8.55 | 0.0151 | 0.0626 | 0.0073 |
| 1794 | 18.63 | 75.32 | 6.05 | 0.0156 | 0.0632 | 0.0051 |
| 1789 | 18.67 | 72.53 | 8.8 | 0.0152 | 0.059 | 0.0072 |
| 1784 | 18.18 | 65.7 | 16.12 | 0.0137 | 0.0494 | 0.0121 |
| 1779 | 28.78 | 64.66 | 6.56 | 0.0193 | 0.0435 | 0.0044 |
| 1774 | 33.45 | 64.78 | 1.77 | 0.022 | 0.0425 | 0.0012 |
| 1769 | 26.32 | 66.8 | 6.88 | 0.0178 | 0.0452 | 0.0047 |
| 1764 | 19.19 | 68.82 | 11.99 | 0.0127 | 0.0456 | 0.008 |
| 1759 | 12.19 | 70.26 | 17.55 | 0.0075 | 0.043 | 0.0107 |
| 1754 | 9.71 | 52.07 | 38.22 | 0.0053 | 0.0287 | 0.0211 |
| 1749 | 11.76 | 46.5 | 41.74 | 0.0057 | 0.0224 | 0.0201 |
| 1744 | 22.62 | 65.45 | 11.93 | 0.0092 | 0.0266 | 0.0049 |
| 1739 | 19.32 | 60.23 | 20.45 | 0.007 | 0.0219 | 0.0074 |
| 1734 | 12.57 | 53.51 | 33.92 | 0.004 | 0.0171 | 0.0109 |
| 1729 | 11.11 | 60.61 | 28.28 | 0.0031 | 0.0171 | 0.008 |
| 1724 | 9.65 | 67.71 | 22.64 | 0.0024 | 0.0172 | 0.0057 |
| 1719 | 8.2 | 74.8 | 17 | 0.0021 | 0.0194 | 0.0044 |
| 1714 | 6.26 | 72.28 | 21.45 | 0.0016 | 0.019 | 0.0056 |
| 1709 | 21.76 | 65.98 | 12.26 | 0.0059 | 0.018 | 0.0033 |
| 1704 | 29.03 | 64.27 | 6.7 | 0.0082 | 0.0182 | 0.0019 |
| 1699 | 24.18 | 67.84 | 7.98 | 0.0071 | 0.0198 | 0.0023 |
| 1694 | 14.52 | 73.65 | 11.83 | 0.0044 | 0.0224 | 0.0036 |
| 1689 | 10.42 | 77 | 12.58 | 0.0032 | 0.0239 | 0.0039 |
| 1684 | 11.43 | 76.81 | 11.75 | 0.0036 | 0.024 | 0.0037 |
| 1679 | 13.33 | 73.57 | 13.1 | 0.0041 | 0.0229 | 0.0041 |
| 1674 | 9.63 | 72.33 | 18.05 | 0.003 | 0.0222 | 0.0055 |
| 1669 | 12.62 | 74.85 | 12.53 | 0.0038 | 0.0226 | 0.0038 |
| 1664 | 16.51 | 76.35 | 7.13 | 0.0049 | 0.0225 | 0.0021 |
| 1659 | 16.44 | 72.56 | 11 | 0.0049 | 0.0216 | 0.0033 |
| 1654 | 9.2 | 62.03 | 28.76 | 0.0027 | 0.0185 | 0.0086 |
| 1649 | 8.12 | 75.94 | 15.94 | 0.0024 | 0.0223 | 0.0047 |
| 1644 | 13.25 | 76.19 | 10.56 | 0.0038 | 0.0218 | 0.003 |
| 1639 | 31.76 | 66.85 | 1.39 | 0.0087 | 0.0184 | 0.0004 |
| 1634 | 32.89 | 67.11 | 0 | 0.0094 | 0.0192 | 0 |
| 1629 | 31.08 | 68.92 | 0 | 0.0092 | 0.0205 | 0 |
| 1624 | 29.29 | 70.36 | 0.35 | 0.0089 | 0.0214 | 0.0001 |
| 1619 | 27.59 | 70.89 | 1.52 | 0.0084 | 0.0215 | 0.0005 |

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|---|---|---|---|---|---|---|
| 1614 | 25.89 | 71.41 | 2.7 | 0.0078 | 0.0214 | 0.0008 |
| 1609 | 24.19 | 71.94 | 3.87 | 0.0071 | 0.0211 | 0.0011 |
| 1604 | 22.49 | 72.47 | 5.04 | 0.0064 | 0.0206 | 0.0014 |
| 1599 | 20.79 | 73 | 6.22 | 0.0056 | 0.0198 | 0.0017 |
| 1594 | 22.77 | 73.21 | 4.02 | 0.0061 | 0.0195 | 0.0011 |
| 1589 | 24.87 | 73.42 | 1.71 | 0.0065 | 0.0191 | 0.0004 |
| 1584 | 26.99 | 73.01 | 0 | 0.0069 | 0.0186 | 0 |
| 1579 | 29.17 | 70.83 | 0 | 0.0074 | 0.018 | 0 |
| 1574 | 31.35 | 68.65 | 0 | 0.0079 | 0.0173 | 0 |
| 1569 | 33.53 | 66.47 | 0 | 0.0083 | 0.0165 | 0 |
| 1564 | 35.72 | 64.28 | 0 | 0.0088 | 0.0158 | 0 |
| 1559 | 37.9 | 62.1 | 0 | 0.0092 | 0.015 | 0 |
| 1554 | 37.15 | 62.85 | 0 | 0.0089 | 0.015 | 0 |
| 1549 | 35.28 | 64.72 | 0 | 0.0083 | 0.0153 | 0 |
| 1544 | 33.42 | 66.58 | 0 | 0.0078 | 0.0154 | 0 |
| 1539 | 29.88 | 68.6 | 1.51 | 0.0072 | 0.0165 | 0.0004 |
| 1534 | 26.18 | 70.64 | 3.18 | 0.0065 | 0.0176 | 0.0008 |
| 1529 | 22.56 | 72.71 | 4.73 | 0.0058 | 0.0186 | 0.0012 |
| 1524 | 20.31 | 75.3 | 4.39 | 0.0052 | 0.0194 | 0.0011 |
| 1519 | 18.06 | 77.89 | 4.05 | 0.0047 | 0.0202 | 0.001 |
| 1514 | 16.49 | 79.85 | 3.66 | 0.0042 | 0.0204 | 0.0009 |
| 1509 | 18.13 | 78.86 | 3.01 | 0.0044 | 0.0193 | 0.0007 |
| 1504 | 15.16 | 83.34 | 1.49 | 0.0035 | 0.0195 | 0.0003 |
| 1499 | 12.49 | 87.4 | 0.11 | 0.0028 | 0.0199 | 0 |
| 1494 | 15.73 | 84.21 | 0.07 | 0.0038 | 0.0202 | 0 |
| 1489 | 18.96 | 81.01 | 0.03 | 0.0048 | 0.0204 | 0 |
| 1484 | 19.96 | 80.04 | 0 | 0.0051 | 0.0204 | 0 |
| 1479 | 15.99 | 84.01 | 0 | 0.0038 | 0.0202 | 0 |
| 1474 | 12.23 | 85.86 | 1.91 | 0.0027 | 0.0193 | 0.0004 |
| 1469 | 9.97 | 86.12 | 3.92 | 0.0022 | 0.0189 | 0.0009 |
| 1464 | 10.67 | 84.04 | 5.29 | 0.0026 | 0.0201 | 0.0013 |
| 1459 | 11.37 | 81.97 | 6.66 | 0.0029 | 0.0211 | 0.0017 |
| 1454 | 16.34 | 77.63 | 6.03 | 0.0044 | 0.021 | 0.0016 |
| 1449 | 30.6 | 68.38 | 1.02 | 0.0083 | 0.0186 | 0.0003 |
| 1444 | 28.5 | 66.06 | 5.43 | 0.0078 | 0.0181 | 0.0015 |
| 1439 | 23.4 | 66.31 | 10.3 | 0.0064 | 0.0182 | 0.0028 |
| 1434 | 21.56 | 68.66 | 9.78 | 0.006 | 0.0191 | 0.0027 |
| 1429 | 14.97 | 69.87 | 15.16 | 0.0042 | 0.0197 | 0.0043 |
| 1424 | 8.68 | 70.17 | 21.15 | 0.0024 | 0.0196 | 0.0059 |
| 1419 | 11.13 | 68.36 | 20.51 | 0.0029 | 0.018 | 0.0054 |
| 1414 | 9.6 | 72.46 | 17.94 | 0.0024 | 0.0179 | 0.0044 |

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|---|---|---|---|---|---|---|
| 1409 | 6.57 | 79.46 | 13.98 | 0.0015 | 0.0184 | 0.0032 |
| 1404 | 12.39 | 81.11 | 6.51 | 0.003 | 0.0199 | 0.0016 |
| 1399 | 12.07 | 80.89 | 7.03 | 0.0031 | 0.021 | 0.0018 |
| 1394 | 5.91 | 78.9 | 15.18 | 0.0016 | 0.0213 | 0.0041 |
| 1389 | 7.06 | 77.68 | 15.26 | 0.0018 | 0.02 | 0.0039 |
| 1384 | 9.3 | 78.5 | 12.2 | 0.0023 | 0.019 | 0.003 |
| 1379 | 12.65 | 82.96 | 4.39 | 0.0029 | 0.0188 | 0.001 |
| 1374 | 14.6 | 71.36 | 14.05 | 0.0032 | 0.0157 | 0.0031 |
| 1369 | 15.25 | 60.04 | 24.71 | 0.0033 | 0.0131 | 0.0054 |
| 1364 | 11.52 | 75.63 | 12.86 | 0.0025 | 0.0162 | 0.0028 |
| 1359 | 10.03 | 84.99 | 4.99 | 0.0022 | 0.0184 | 0.0011 |
| 1354 | 10.33 | 89.41 | 0.27 | 0.0023 | 0.0199 | 0.0001 |
| 1349 | 9.4 | 89.23 | 1.37 | 0.0021 | 0.0203 | 0.0003 |
| 1344 | 9.16 | 86.68 | 4.16 | 0.0021 | 0.0199 | 0.001 |
| 1339 | 10.54 | 79.69 | 9.77 | 0.0024 | 0.0181 | 0.0022 |
| 1334 | 25.3 | 68.05 | 6.65 | 0.0057 | 0.0154 | 0.0015 |
| 1329 | 44.19 | 55.79 | 0.02 | 0.0098 | 0.0124 | 0 |
| 1324 | 29.99 | 69.66 | 0.35 | 0.0067 | 0.0155 | 0.0001 |
| 1319 | 18.47 | 79.5 | 2.04 | 0.0041 | 0.0177 | 0.0005 |
| 1314 | 10.82 | 83.48 | 5.69 | 0.0024 | 0.0185 | 0.0013 |
| 1309 | 9.66 | 81.89 | 8.45 | 0.0021 | 0.0178 | 0.0018 |
| 1304 | 10.44 | 79.31 | 10.26 | 0.0022 | 0.0169 | 0.0022 |
| 1299 | 9.58 | 84.57 | 5.85 | 0.002 | 0.0175 | 0.0012 |
| 1294 | 9.73 | 82.46 | 7.82 | 0.002 | 0.017 | 0.0016 |
| 1289 | 11.23 | 70.41 | 18.36 | 0.0024 | 0.0149 | 0.0039 |
| 1284 | 12.66 | 70.97 | 16.37 | 0.0028 | 0.0155 | 0.0036 |
| 1279 | 13.88 | 74.92 | 11.21 | 0.0031 | 0.0166 | 0.0025 |
| 1274 | 12.47 | 67.47 | 20.06 | 0.0027 | 0.0143 | 0.0043 |
| 1269 | 12.32 | 64.34 | 23.35 | 0.0025 | 0.0131 | 0.0048 |
| 1264 | 14.27 | 68.37 | 17.37 | 0.0028 | 0.0133 | 0.0034 |
| 1259 | 14.85 | 69.84 | 15.31 | 0.0029 | 0.0138 | 0.003 |
| 1254 | 14.78 | 70.08 | 15.14 | 0.0031 | 0.0146 | 0.0031 |
| 1249 | 13.53 | 68.96 | 17.51 | 0.0029 | 0.015 | 0.0038 |
| 1244 | 12.3 | 67.75 | 19.94 | 0.0028 | 0.0153 | 0.0045 |
| 1239 | 11.25 | 66.44 | 22.31 | 0.0026 | 0.0153 | 0.0051 |
| 1234 | 10.14 | 63.79 | 26.07 | 0.0023 | 0.0146 | 0.006 |
| 1229 | 8.98 | 60 | 31.03 | 0.002 | 0.0136 | 0.007 |
| 1224 | 11.7 | 62.25 | 26.05 | 0.0026 | 0.0139 | 0.0058 |
| 1219 | 15.34 | 65.96 | 18.7 | 0.0034 | 0.0147 | 0.0042 |
| 1214 | 18.99 | 69.67 | 11.34 | 0.0044 | 0.016 | 0.0026 |
| 1209 | 25.23 | 66.57 | 8.2 | 0.0059 | 0.0157 | 0.0019 |

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|---|---|---|---|---|---|---|
| 1204 | 32.7 | 60.22 | 7.07 | 0.0078 | 0.0144 | 0.0017 |
| 1199 | 25.62 | 67.24 | 7.14 | 0.0058 | 0.0153 | 0.0016 |
| 1194 | 19.29 | 73.05 | 7.66 | 0.0041 | 0.0156 | 0.0016 |
| 1189 | 22.2 | 67.86 | 9.94 | 0.0044 | 0.0136 | 0.002 |
| 1184 | 21.38 | 65.34 | 13.28 | 0.0041 | 0.0126 | 0.0026 |
| 1179 | 15.09 | 66.73 | 18.18 | 0.0029 | 0.0129 | 0.0035 |
| 1174 | 17.18 | 69.98 | 12.84 | 0.0034 | 0.0137 | 0.0025 |
| 1169 | 24.09 | 74.29 | 1.62 | 0.0047 | 0.0145 | 0.0003 |
| 1164 | 21.65 | 76.28 | 2.06 | 0.0044 | 0.0156 | 0.0004 |
| 1159 | 19.04 | 76.83 | 4.14 | 0.0041 | 0.0165 | 0.0009 |
| 1154 | 35.01 | 63.25 | 1.74 | 0.0079 | 0.0143 | 0.0004 |
| 1149 | 44.28 | 55.69 | 0.03 | 0.0103 | 0.013 | 0 |
| 1144 | 36.01 | 63.84 | 0.15 | 0.0086 | 0.0152 | 0 |
| 1139 | 29.86 | 69.98 | 0.15 | 0.0072 | 0.0169 | 0 |
| 1134 | 26.05 | 73.91 | 0.04 | 0.0064 | 0.0181 | 0 |
| 1129 | 26.81 | 73.05 | 0.14 | 0.0065 | 0.0178 | 0 |
| 1124 | 29.83 | 69.82 | 0.35 | 0.0071 | 0.0167 | 0.0001 |
| 1119 | 24.43 | 75.04 | 0.53 | 0.0057 | 0.0176 | 0.0001 |
| 1114 | 18.01 | 81.26 | 0.73 | 0.0041 | 0.0187 | 0.0002 |
| 1109 | 25 | 73.09 | 1.91 | 0.0061 | 0.0179 | 0.0005 |
| 1104 | 29.29 | 67.05 | 3.66 | 0.0076 | 0.0174 | 0.0009 |
| 1099 | 22.92 | 69.42 | 7.67 | 0.0063 | 0.019 | 0.0021 |
| 1094 | 18.87 | 70.92 | 10.21 | 0.0052 | 0.0196 | 0.0028 |
| 1089 | 18.87 | 70.92 | 10.21 | 0.005 | 0.0187 | 0.0027 |
| 1084 | 14.86 | 64.6 | 20.53 | 0.0037 | 0.0162 | 0.0052 |
| 1079 | 7.19 | 52.51 | 40.31 | 0.0017 | 0.0124 | 0.0095 |
| 1074 | 6.95 | 56.53 | 36.52 | 0.0017 | 0.0135 | 0.0087 |
| 1069 | 10.35 | 68.44 | 21.21 | 0.0026 | 0.0171 | 0.0053 |
| 1064 | 8.4 | 61.93 | 29.68 | 0.0022 | 0.0162 | 0.0078 |
| 1059 | 5.23 | 51.22 | 43.56 | 0.0014 | 0.0139 | 0.0118 |
| 1054 | 5.59 | 49.51 | 44.9 | 0.0014 | 0.0128 | 0.0116 |
| 1049 | 6.28 | 48.66 | 45.06 | 0.0016 | 0.012 | 0.0111 |
| 1044 | 8.63 | 52.23 | 39.15 | 0.002 | 0.0122 | 0.0092 |
| 1039 | 10.11 | 56.84 | 33.05 | 0.0023 | 0.0127 | 0.0074 |
| 1034 | 8.11 | 65.65 | 26.24 | 0.0018 | 0.0146 | 0.0058 |
| 1029 | 6.14 | 67.73 | 26.13 | 0.0014 | 0.015 | 0.0058 |
| 1024 | 4.23 | 55.15 | 40.63 | 0.0009 | 0.0121 | 0.0089 |
| 1019 | 4.3 | 48.92 | 46.79 | 0.0009 | 0.0107 | 0.0103 |
| 1014 | 7.08 | 51.4 | 41.52 | 0.0016 | 0.0114 | 0.0092 |
| 1009 | 7.77 | 57.16 | 35.07 | 0.0017 | 0.0128 | 0.0079 |
| 1004 | 6.54 | 65.91 | 27.54 | 0.0015 | 0.0149 | 0.0062 |

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|---|---|---|---|---|---|---|
| 999 | 6.27 | 62.83 | 30.91 | 0.0014 | 0.0142 | 0.007 |
| 994 | 6.58 | 52.37 | 41.05 | 0.0015 | 0.0118 | 0.0093 |
| 989 | 6.49 | 49.31 | 44.2 | 0.0015 | 0.0111 | 0.0099 |
| 984 | 6.23 | 49.37 | 44.39 | 0.0014 | 0.011 | 0.0099 |
| 979 | 7.58 | 56.97 | 35.45 | 0.0017 | 0.0127 | 0.0079 |
| 974 | 9.38 | 66.64 | 23.98 | 0.0021 | 0.015 | 0.0054 |
| 969 | 9.56 | 61.5 | 28.95 | 0.0022 | 0.0139 | 0.0065 |
| 964 | 9.46 | 53.87 | 36.67 | 0.0021 | 0.0121 | 0.0083 |
| 959 | 10.14 | 57.74 | 32.12 | 0.0022 | 0.0128 | 0.0071 |
| 954 | 10.89 | 62.56 | 26.55 | 0.0024 | 0.0136 | 0.0058 |
| 949 | 10.34 | 62.47 | 27.19 | 0.0022 | 0.0133 | 0.0058 |
| 944 | 9.76 | 62.3 | 27.94 | 0.002 | 0.0129 | 0.0058 |
| 939 | 9.19 | 62.13 | 28.68 | 0.0019 | 0.0131 | 0.006 |
| 934 | 8.7 | 61.4 | 29.9 | 0.0019 | 0.0131 | 0.0064 |
| 929 | 9.09 | 54.47 | 36.43 | 0.002 | 0.0118 | 0.0079 |
| 924 | 9.53 | 49.74 | 40.73 | 0.0021 | 0.0109 | 0.0089 |
| 919 | 10.25 | 60.86 | 28.89 | 0.0022 | 0.0129 | 0.0061 |
| 914 | 10.71 | 68.97 | 20.31 | 0.0022 | 0.0143 | 0.0042 |
| 909 | 9.8 | 60.61 | 29.59 | 0.002 | 0.0122 | 0.0059 |
| 904 | 9.22 | 54.03 | 36.75 | 0.0018 | 0.0105 | 0.0072 |
| 899 | 10.13 | 55.53 | 34.34 | 0.002 | 0.0109 | 0.0067 |
| 894 | 11.04 | 57.03 | 31.93 | 0.0022 | 0.0113 | 0.0063 |
| 889 | 11.95 | 58.53 | 29.51 | 0.0024 | 0.0116 | 0.0059 |
| 884 | 12.6 | 59.63 | 27.77 | 0.0024 | 0.0115 | 0.0054 |
| 879 | 12.28 | 59.26 | 28.47 | 0.0021 | 0.01 | 0.0048 |
| 874 | 12 | 59.41 | 28.59 | 0.0017 | 0.0085 | 0.0041 |
| 869 | 11.86 | 61.45 | 26.69 | 0.0014 | 0.0073 | 0.0032 |
| 864 | 11.31 | 62.53 | 26.17 | 0.0012 | 0.0066 | 0.0028 |
| 859 | 9.25 | 60.19 | 30.56 | 0.0013 | 0.0082 | 0.0042 |
| 854 | 7.76 | 59.27 | 32.97 | 0.0013 | 0.0099 | 0.0055 |
| 849 | 8.38 | 63.55 | 28.08 | 0.0017 | 0.0126 | 0.0056 |
| 844 | 8.86 | 66.49 | 24.66 | 0.002 | 0.0147 | 0.0055 |
| 839 | 8.75 | 64.09 | 27.16 | 0.0019 | 0.0142 | 0.006 |
| 834 | 8.65 | 61.69 | 29.67 | 0.0019 | 0.0138 | 0.0066 |
| 829 | 8.54 | 59.29 | 32.17 | 0.0019 | 0.0133 | 0.0072 |
| 824 | 8.52 | 56.66 | 34.82 | 0.0019 | 0.0127 | 0.0078 |
| 819 | 8.96 | 52.77 | 38.28 | 0.0021 | 0.0124 | 0.009 |
| 814 | 9.39 | 50.62 | 39.99 | 0.0023 | 0.0123 | 0.0097 |
| 809 | 9.77 | 61.12 | 29.11 | 0.0025 | 0.0155 | 0.0074 |
| 804 | 10.2 | 70.29 | 19.5 | 0.0026 | 0.0182 | 0.0051 |
| 799 | 11.19 | 64.82 | 23.99 | 0.0028 | 0.016 | 0.0059 |

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|---|---|---|---|---|---|---|
| 794 | 12.02 | 59.4 | 28.57 | 0.0028 | 0.0139 | 0.0067 |
| 789 | 8.97 | 55.38 | 35.66 | 0.002 | 0.0122 | 0.0079 |
| 784 | 5.91 | 51.35 | 42.74 | 0.0012 | 0.0106 | 0.0088 |
| 779 | 7.5 | 62.38 | 30.12 | 0.0016 | 0.0134 | 0.0064 |
| 774 | 9.15 | 73.63 | 17.22 | 0.002 | 0.0164 | 0.0038 |
| 769 | 7.89 | 64.56 | 27.56 | 0.0018 | 0.0149 | 0.0064 |
| 764 | 6.39 | 53.89 | 39.72 | 0.0015 | 0.0128 | 0.0095 |
| 759 | 7.6 | 55.84 | 36.57 | 0.0018 | 0.0131 | 0.0086 |
| 754 | 9.23 | 59.78 | 30.99 | 0.0021 | 0.0138 | 0.0071 |
| 749 | 10.6 | 67.66 | 21.74 | 0.0024 | 0.0152 | 0.0049 |
| 744 | 11.9 | 76.56 | 11.54 | 0.0026 | 0.0168 | 0.0025 |
| 739 | 12.82 | 76.84 | 10.33 | 0.0027 | 0.0164 | 0.0022 |
| 734 | 13.59 | 73.69 | 12.72 | 0.0028 | 0.0153 | 0.0026 |
| 729 | 12.47 | 70.52 | 17.01 | 0.0025 | 0.0142 | 0.0034 |
| 724 | 10.24 | 67.33 | 22.42 | 0.002 | 0.0132 | 0.0044 |
| 719 | 10.07 | 61.39 | 28.54 | 0.002 | 0.012 | 0.0056 |
| 714 | 11.64 | 53.11 | 35.24 | 0.0023 | 0.0106 | 0.0071 |
| 709 | 10.85 | 48.26 | 40.89 | 0.0022 | 0.0099 | 0.0084 |
| 704 | 7.14 | 47.64 | 45.22 | 0.0015 | 0.01 | 0.0095 |
| 699 | 5.87 | 46.46 | 47.67 | 0.0012 | 0.0099 | 0.0102 |
| 694 | 9.23 | 44.21 | 46.56 | 0.002 | 0.0095 | 0.01 |
| 689 | 11.28 | 43.77 | 44.96 | 0.0025 | 0.0095 | 0.0098 |
| 684 | 9.12 | 49.14 | 41.74 | 0.002 | 0.0108 | 0.0092 |
| 679 | 7.32 | 54.75 | 37.93 | 0.0016 | 0.012 | 0.0083 |
| 674 | 8.07 | 62.08 | 29.85 | 0.0017 | 0.0132 | 0.0064 |
| 669 | 8.81 | 69.39 | 21.79 | 0.0018 | 0.0143 | 0.0045 |
| 664 | 8.66 | 67.78 | 23.56 | 0.0017 | 0.0135 | 0.0047 |
| 659 | 8.5 | 66.17 | 25.32 | 0.0016 | 0.0127 | 0.0049 |
| 654 | 7.07 | 61.68 | 31.25 | 0.0014 | 0.0123 | 0.0062 |
| 649 | 5.45 | 56.78 | 37.77 | 0.0011 | 0.0118 | 0.0079 |
| 644 | 7.29 | 66.97 | 25.74 | 0.0016 | 0.0145 | 0.0056 |
| 639 | 10.32 | 82.39 | 7.29 | 0.0023 | 0.0185 | 0.0016 |
| 634 | 12.01 | 86.82 | 1.16 | 0.0027 | 0.0197 | 0.0003 |
| 629 | 12.83 | 84.08 | 3.09 | 0.0029 | 0.019 | 0.0007 |
| 624 | 13.2 | 81.5 | 5.3 | 0.003 | 0.0183 | 0.0012 |
| 619 | 13.05 | 79.12 | 7.83 | 0.0029 | 0.0177 | 0.0017 |
| 614 | 13.29 | 77.39 | 9.32 | 0.0029 | 0.0171 | 0.0021 |
| 609 | 14.38 | 77.13 | 8.49 | 0.0031 | 0.0168 | 0.0019 |
| 604 | 14.87 | 74.31 | 10.81 | 0.0032 | 0.016 | 0.0023 |
| 599 | 12.05 | 57.36 | 30.59 | 0.0026 | 0.0122 | 0.0065 |
| 594 | 9.23 | 40.4 | 50.37 | 0.0019 | 0.0085 | 0.0106 |

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|---|---|---|---|---|---|---|
| 589 | 11.19 | 57.47 | 31.35 | 0.0023 | 0.012 | 0.0065 |
| 584 | 13.19 | 74.87 | 11.94 | 0.0027 | 0.0154 | 0.0025 |
| 579 | 15 | 76.37 | 8.63 | 0.0031 | 0.0156 | 0.0018 |
| 574 | 16.77 | 74.43 | 8.8 | 0.0034 | 0.015 | 0.0018 |
| 569 | 17.15 | 74.62 | 8.23 | 0.0035 | 0.0151 | 0.0017 |
| 564 | 16.77 | 75.97 | 7.26 | 0.0034 | 0.0156 | 0.0015 |
| 559 | 17.17 | 76.68 | 6.15 | 0.0036 | 0.0159 | 0.0013 |
| 554 | 18.43 | 76.67 | 4.9 | 0.0039 | 0.0161 | 0.001 |
| 549 | 19.7 | 76.66 | 3.65 | 0.0042 | 0.0162 | 0.0008 |
| 544 | 20.97 | 76.64 | 2.39 | 0.0044 | 0.0162 | 0.0005 |
| 539 | 21.75 | 76.37 | 1.88 | 0.0046 | 0.0161 | 0.0004 |
| 534 | 17.65 | 73.46 | 8.89 | 0.0037 | 0.0155 | 0.0019 |
| 529 | 13.54 | 70.54 | 15.91 | 0.0028 | 0.0148 | 0.0033 |
| 524 | 17.22 | 71.52 | 11.26 | 0.0036 | 0.0148 | 0.0023 |
| 519 | 21.84 | 72.98 | 5.17 | 0.0045 | 0.0149 | 0.0011 |
| 514 | 20.57 | 70.43 | 9.01 | 0.0042 | 0.0142 | 0.0018 |
| 509 | 16.61 | 66.05 | 17.34 | 0.0033 | 0.0132 | 0.0035 |
| 504 | 18.6 | 64.39 | 17.01 | 0.0038 | 0.0133 | 0.0035 |
| 499 | 27.07 | 65.72 | 7.22 | 0.0061 | 0.0147 | 0.0016 |
| 494 | 30.53 | 65.58 | 3.89 | 0.0074 | 0.0158 | 0.0009 |
| 489 | 19.97 | 61.37 | 18.66 | 0.0049 | 0.015 | 0.0046 |
| 484 | 10.26 | 57.56 | 32.18 | 0.0025 | 0.014 | 0.0078 |
| 479 | 19.59 | 62.97 | 17.44 | 0.0048 | 0.0153 | 0.0042 |
| 474 | 28.92 | 68.37 | 2.71 | 0.007 | 0.0165 | 0.0007 |
| 469 | 29.73 | 70.27 | 0 | 0.0072 | 0.0171 | 0 |
| 464 | 28.62 | 71.38 | 0 | 0.0071 | 0.0178 | 0 |
| 459 | 30.18 | 69.82 | 0 | 0.0077 | 0.0178 | 0 |
| 454 | 33.66 | 66.34 | 0 | 0.0088 | 0.0173 | 0 |
| 449 | 36.78 | 63.22 | 0 | 0.0098 | 0.0168 | 0 |
| 444 | 39.25 | 60.74 | 0.01 | 0.0102 | 0.0158 | 0 |
| 439 | 40.68 | 59.08 | 0.24 | 0.0104 | 0.0151 | 0.0001 |
| 434 | 33.01 | 64.65 | 2.34 | 0.0082 | 0.0161 | 0.0006 |
| 429 | 25.35 | 70.22 | 4.43 | 0.0062 | 0.0171 | 0.0011 |
| 424 | 26.63 | 70.42 | 2.95 | 0.0064 | 0.0168 | 0.0007 |
| 419 | 29.46 | 69.7 | 0.84 | 0.007 | 0.0165 | 0.0002 |
| 414 | 32.42 | 67.58 | 0 | 0.0076 | 0.0159 | 0 |
| 409 | 35.46 | 64.54 | 0 | 0.0083 | 0.0151 | 0 |
| 404 | 36.25 | 63.72 | 0.03 | 0.0084 | 0.0148 | 0 |
| 399 | 32.62 | 67.27 | 0.11 | 0.0075 | 0.0154 | 0 |
| 394 | 29.4 | 70.42 | 0.18 | 0.0067 | 0.016 | 0 |
| 389 | 31.42 | 68.48 | 0.1 | 0.0071 | 0.0154 | 0 |

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|---|---|---|---|---|---|---|
| 384 | 33.45 | 66.54 | 0.02 | 0.0074 | 0.0147 | 0 |
| 379 | 30.99 | 68.74 | 0.27 | 0.0067 | 0.0149 | 0.0001 |
| 374 | 27.43 | 71.97 | 0.6 | 0.0058 | 0.0152 | 0.0001 |
| 369 | 21.05 | 59.75 | 19.21 | 0.0043 | 0.0123 | 0.004 |
| 364 | 12.1 | 33.52 | 54.38 | 0.0024 | 0.0067 | 0.0109 |
| 359 | 8.28 | 19.27 | 72.45 | 0.0016 | 0.0037 | 0.0141 |
| 354 | 20.49 | 42.48 | 37.03 | 0.0041 | 0.0084 | 0.0073 |
| 349 | 32.7 | 65.69 | 1.61 | 0.0067 | 0.0135 | 0.0003 |
| 344 | 28.1 | 67.45 | 4.45 | 0.0059 | 0.0143 | 0.0009 |
| 339 | 22.71 | 68.18 | 9.11 | 0.0049 | 0.0149 | 0.002 |
| 334 | 20.4 | 68.71 | 10.89 | 0.0045 | 0.0152 | 0.0024 |
| 329 | 19.68 | 69.13 | 11.19 | 0.0043 | 0.0152 | 0.0025 |
| 324 | 19.62 | 69.98 | 10.4 | 0.0043 | 0.0152 | 0.0023 |
| 319 | 20.72 | 71.57 | 7.7 | 0.0045 | 0.0154 | 0.0017 |
| 314 | 22.09 | 72.88 | 5.03 | 0.0047 | 0.0155 | 0.0011 |
| 309 | 27.72 | 69.49 | 2.8 | 0.0062 | 0.0154 | 0.0006 |
| 304 | 33.35 | 66.1 | 0.56 | 0.008 | 0.0159 | 0.0001 |
| 299 | 29.05 | 66.38 | 4.58 | 0.0075 | 0.0172 | 0.0012 |
| 294 | 21.43 | 67.89 | 10.68 | 0.006 | 0.0189 | 0.003 |
| 289 | 23.09 | 65.43 | 11.48 | 0.0068 | 0.0193 | 0.0034 |
| 284 | 36.79 | 57.82 | 5.39 | 0.0103 | 0.0161 | 0.0015 |
| 279 | 47.38 | 52.54 | 0.08 | 0.0124 | 0.0138 | 0 |
| 274 | 34.01 | 65.26 | 0.73 | 0.0083 | 0.0159 | 0.0002 |
| 269 | 20.64 | 77.97 | 1.39 | 0.0047 | 0.0177 | 0.0003 |
| 264 | 25.72 | 73.27 | 1.01 | 0.0056 | 0.0158 | 0.0002 |
| 259 | 35.71 | 63.93 | 0.35 | 0.008 | 0.0142 | 0.0001 |
| 254 | 40.01 | 59.99 | 0 | 0.0092 | 0.0137 | 0 |
| 249 | 37.62 | 62.38 | 0 | 0.0089 | 0.0147 | 0 |
| 244 | 35.36 | 64.53 | 0.12 | 0.0085 | 0.0156 | 0 |
| 239 | 34.04 | 64.91 | 1.05 | 0.0082 | 0.0157 | 0.0003 |
| 234 | 32.73 | 65.29 | 1.98 | 0.0079 | 0.0157 | 0.0005 |
| 229 | 35.71 | 62.83 | 1.45 | 0.0085 | 0.015 | 0.0003 |
| 224 | 39.89 | 59.59 | 0.52 | 0.0095 | 0.0142 | 0.0001 |
| 219 | 37.78 | 60.63 | 1.58 | 0.0089 | 0.0142 | 0.0004 |
| 214 | 27.57 | 67.22 | 5.21 | 0.0063 | 0.0153 | 0.0012 |
| 209 | 17.91 | 72.31 | 9.79 | 0.004 | 0.016 | 0.0022 |
| 204 | 14.05 | 61.41 | 24.54 | 0.003 | 0.0132 | 0.0053 |
| 199 | 10.18 | 50.51 | 39.3 | 0.0021 | 0.0105 | 0.0081 |
| 194 | 12.55 | 55.75 | 31.7 | 0.0025 | 0.0112 | 0.0064 |
| 189 | 17.23 | 66.98 | 15.79 | 0.0033 | 0.013 | 0.0031 |
| 184 | 21.57 | 72.98 | 5.45 | 0.004 | 0.0136 | 0.001 |

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|---|---|---|---|---|---|---|
| 179 | 25.31 | 69.98 | 4.71 | 0.0045 | 0.0126 | 0.0008 |
| 174 | 29.05 | 66.98 | 3.96 | 0.005 | 0.0115 | 0.0007 |
| 169 | 26.78 | 70.92 | 2.29 | 0.0045 | 0.012 | 0.0004 |
| 164 | 24.51 | 74.87 | 0.62 | 0.0042 | 0.0128 | 0.0001 |
| 159 | 21.25 | 76.72 | 2.03 | 0.0037 | 0.0133 | 0.0004 |
| 154 | 17.39 | 77.34 | 5.27 | 0.003 | 0.0135 | 0.0009 |
| 149 | 15.64 | 76.86 | 7.5 | 0.0027 | 0.0135 | 0.0013 |
| 144 | 20.1 | 73.12 | 6.78 | 0.0036 | 0.0133 | 0.0012 |
| 139 | 24.56 | 69.37 | 6.07 | 0.0046 | 0.0131 | 0.0011 |
| 134 | 29.71 | 66.5 | 3.79 | 0.0058 | 0.013 | 0.0007 |
| 129 | 34.95 | 63.75 | 1.29 | 0.0071 | 0.0129 | 0.0003 |
| 124 | 33.49 | 63.72 | 2.79 | 0.007 | 0.0133 | 0.0006 |
| 119 | 24.88 | 66.58 | 8.54 | 0.0055 | 0.0148 | 0.0019 |
| 114 | 17.44 | 69.31 | 13.25 | 0.0041 | 0.0164 | 0.0031 |
| 109 | 21.66 | 70.84 | 7.5 | 0.0054 | 0.0178 | 0.0019 |
| 104 | 25.88 | 72.37 | 1.75 | 0.0069 | 0.0192 | 0.0005 |
| 99 | 26.05 | 72.56 | 1.39 | 0.0072 | 0.0199 | 0.0004 |
| 94 | 24.46 | 72.15 | 3.39 | 0.0067 | 0.0197 | 0.0009 |
| 89 | 24.33 | 71.45 | 4.22 | 0.0066 | 0.0194 | 0.0011 |
| 84 | 27.74 | 70.04 | 2.22 | 0.0075 | 0.0188 | 0.0006 |
| 79 | 31.15 | 68.62 | 0.23 | 0.0083 | 0.0183 | 0.0001 |
| 74 | 27.75 | 72.04 | 0.21 | 0.0074 | 0.0191 | 0.0001 |
| 69 | 23.48 | 76.08 | 0.44 | 0.0062 | 0.0201 | 0.0001 |
| 64 | 22.16 | 77.22 | 0.62 | 0.0059 | 0.0204 | 0.0002 |
| 59 | 24.1 | 75.15 | 0.75 | 0.0064 | 0.0199 | 0.0002 |
| 54 | 26.26 | 72.89 | 0.85 | 0.0069 | 0.0192 | 0.0002 |
| 49 | 31.99 | 67.53 | 0.49 | 0.0087 | 0.0183 | 0.0001 |
| 44 | 37.71 | 62.16 | 0.13 | 0.0107 | 0.0176 | 0 |
| 39 | 34.28 | 56.88 | 8.85 | 0.0102 | 0.0169 | 0.0026 |
| 34 | 25.64 | 51.64 | 22.71 | 0.0079 | 0.016 | 0.007 |
| 29 | 20.19 | 48.95 | 30.85 | 0.0065 | 0.0157 | 0.0099 |
| 24 | 26.6 | 55.75 | 17.66 | 0.0085 | 0.0178 | 0.0056 |
| 19 | 33 | 62.54 | 4.46 | 0.0103 | 0.0195 | 0.0014 |
| 14 | 31.61 | 55.45 | 12.94 | 0.0096 | 0.0168 | 0.0039 |
| 9 | 28.02 | 44.48 | 27.5 | 0.0083 | 0.0131 | 0.0081 |
| 4 | 24.72 | 41.7 | 33.58 | 0.0071 | 0.012 | 0.0096 |
| -1 | 21.97 | 54.45 | 23.58 | 0.006 | 0.0149 | 0.0065 |
| -6 | 19.22 | 67.2 | 13.58 | 0.005 | 0.0175 | 0.0035 |
| -11 | 20.99 | 62.87 | 16.15 | 0.0052 | 0.0155 | 0.004 |
| -16 | 23.23 | 56.74 | 20.03 | 0.0054 | 0.0132 | 0.0047 |
| -21 | 22.13 | 51.01 | 26.86 | 0.0048 | 0.0111 | 0.0059 |

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|---|---|---|---|---|---|---|
| -26 | 17.1 | 45.75 | 37.14 | 0.0041 | 0.0108 | 0.0088 |
| -31 | 12.17 | 40.71 | 47.12 | 0.0031 | 0.0104 | 0.0121 |
| -36 | 15.85 | 56.3 | 27.84 | 0.0044 | 0.0156 | 0.0077 |
| -41 | 19.54 | 71.89 | 8.57 | 0.0058 | 0.0213 | 0.0025 |
| -46 | 20.64 | 72.76 | 6.61 | 0.0065 | 0.0228 | 0.0021 |
| -51 | 19.66 | 61.84 | 18.5 | 0.006 | 0.019 | 0.0057 |
| -56 | 18.88 | 52.42 | 28.7 | 0.0057 | 0.0158 | 0.0086 |
| -61 | 19.92 | 57.06 | 23.01 | 0.0059 | 0.0168 | 0.0068 |
| -66 | 20.96 | 61.71 | 17.33 | 0.006 | 0.0178 | 0.005 |
| -71 | 22.32 | 63.88 | 13.8 | 0.0062 | 0.0178 | 0.0039 |
| -76 | 23.86 | 64.61 | 11.53 | 0.0062 | 0.0169 | 0.003 |
| -81 | 25.19 | 65.82 | 8.99 | 0.0061 | 0.016 | 0.0022 |
| -86 | 25.44 | 69.46 | 5.09 | 0.0057 | 0.0156 | 0.0011 |
| -91 | 25.7 | 73.1 | 1.2 | 0.0053 | 0.0151 | 0.0002 |
| -96 | 25.68 | 74.32 | 0 | 0.0049 | 0.0143 | 0 |
| -101 | 25.54 | 74.46 | 0 | 0.005 | 0.0147 | 0 |
| -106 | 24.95 | 74.7 | 0.35 | 0.0051 | 0.0151 | 0.0001 |
| -111 | 22.7 | 75.33 | 1.97 | 0.0047 | 0.0156 | 0.0004 |
| -116 | 20.46 | 75.96 | 3.59 | 0.0044 | 0.0162 | 0.0008 |
| -121 | 20.06 | 74.24 | 5.7 | 0.0044 | 0.0162 | 0.0012 |
| -126 | 20.33 | 71.67 | 8 | 0.0047 | 0.0165 | 0.0018 |
| -131 | 20 | 68.53 | 11.48 | 0.0048 | 0.0165 | 0.0028 |
| -136 | 17.77 | 63.66 | 18.57 | 0.0045 | 0.016 | 0.0047 |
| -141 | 15.54 | 58.78 | 25.67 | 0.0041 | 0.0155 | 0.0068 |

## Appendix F: Composite %lithics

| Core | Drive | Mean Depth | Comp. Depth | BP | CE/BCE | %Lithics |
|---|---|---|---|---|---|---|
| D13 | 1 | 0.75 | 0.75 | -63.5 | 2013.5 | 44.0625 |
| D13 | 1 | 1.75 | 1.75 | -63.7 | 2013.7 | 44.6945 |
| D13 | 1 | 2.75 | 2.75 | -63.8 | 2013.8 | 37.4233 |
| D13 | 1 | 3.75 | 3.75 | -63.7 | 2013.7 | 41.8605 |
| D13 | 1 | 4.75 | 4.75 | -63.5 | 2013.5 | 57.0957 |
| D13 | 1 | 5.75 | 5.75 | -63.3 | 2013.3 | 47.2561 |
| D13 | 1 | 6.75 | 6.75 | -62.9 | 2012.9 | 50.1639 |
| D13 | 1 | 7.75 | 7.75 | -62.4 | 2012.4 | 47.0588 |
| D13 | 1 | 8.75 | 8.75 | -61.9 | 2011.9 | 49.8498 |
| D13 | 1 | 9.75 | 9.75 | -61.2 | 2011.2 | 53.6585 |
| D13 | 1 | 10.75 | 10.75 | -60.4 | 2010.4 | 60.9756 |
| D13 | 1 | 11.75 | 11.75 | -59.5 | 2009.5 | 65.4286 |
| D13 | 1 | 12.75 | 12.75 | -58.6 | 2008.6 | 63.3136 |
| D13 | 1 | 13.75 | 13.75 | -57.5 | 2007.5 | 84.8921 |
| D13 | 1 | 14.75 | 14.75 | -56.3 | 2006.3 | 78.3172 |
| D13 | 1 | 15.75 | 15.75 | -55.0 | 2005.0 | 68.5083 |
| D13 | 1 | 16.75 | 16.75 | -53.7 | 2003.7 | 58.8942 |
| D13 | 1 | 17.75 | 17.75 | -52.2 | 2002.2 | 69.1293 |
| D13 | 1 | 18.75 | 18.75 | -50.6 | 2000.6 | 81.7949 |
| D13 | 1 | 19.75 | 19.75 | -48.9 | 1998.9 | 67.7507 |
| D13 | 1 | 20.75 | 20.75 | -47.2 | 1997.2 | 52.7211 |
| D13 | 1 | 21.75 | 21.75 | -45.3 | 1995.3 | 42.1466 |
| D13 | 1 | 22.75 | 22.75 | -43.4 | 1993.4 | 49.0141 |
| D13 | 1 | 23.75 | 23.75 | -39.7 | 1989.7 | 43.3862 |
| D13 | 1 | 25.5 | 25.5 | -36.9 | 1986.9 | 35.6796 |
| D13 | 1 | 26.75 | 26.75 | -34.6 | 1984.6 | 39.7163 |
| D13 | 1 | 27.75 | 27.75 | -30.9 | 1980.9 | 38.8060 |
| D13 | 1 | 29.25 | 29.25 | -27.0 | 1977.0 | 81.4050 |
| D13 | 1 | 30.75 | 30.75 | -24.3 | 1974.3 | 77.1014 |
| D13 | 1 | 31.75 | 31.75 | -20.1 | 1970.1 | 65.9459 |
| D13 | 1 | 33.25 | 33.25 | -15.7 | 1965.7 | 69.6822 |
| D13 | 1 | 34.75 | 34.75 | -12.7 | 1962.7 | 67.0157 |
| D13 | 1 | 35.75 | 35.75 | -7.9 | 1957.9 | 67.8947 |
| D13 | 1 | 37.25 | 37.25 | -3.0 | 1953.0 | 18.7661 |
| D13 | 1 | 38.75 | 38.75 | 0.5 | 1949.5 | 70.4082 |
| D13 | 1 | 39.75 | 39.75 | 3.9 | 1946.1 | 60.2703 |
| D13 | 1 | 40.75 | 40.75 | 7.5 | 1942.5 | 75.4717 |
| D13 | 1 | 41.75 | 41.75 | 13.1 | 1936.9 | |

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|---|---|---|---|---|---|---|
| D13 | 1 | 43.25 | 43.25 | 18.8 | 1931.2 | 53.8462 |
| D13 | 1 | 44.75 | 44.75 | 22.7 | 1927.3 | 57.5406 |
| D13 | 1 | 45.75 | 45.75 | 28.7 | 1921.3 | 57.9075 |
| D13 | 1 | 47.25 | 47.25 | 34.9 | 1915.1 | 58.0097 |
| D13 | 1 | 48.75 | 48.75 | 39.2 | 1910.8 | 68.8488 |
| D13 | 1 | 49.75 | 49.75 | 43.5 | 1906.5 | 62.7792 |
| D13 | 1 | 50.75 | 50.75 | 47.9 | 1902.1 | 45.1613 |
| D13 | 1 | 51.75 | 51.75 | 54.7 | 1895.3 | 56.8915 |
| D13 | 1 | 53.25 | 53.25 | 61.6 | 1888.4 | 50.8721 |
| D13 | 1 | 54.75 | 54.75 | 66.3 | 1883.7 | 61.5804 |
| D13 | 1 | 55.75 | 55.75 | 73.6 | 1876.4 | 74.3304 |
| D13 | 1 | 57.25 | 57.25 | 81.0 | 1869.0 | 51.6129 |
| D13 | 1 | 58.75 | 58.75 | 86.0 | 1864.0 | 61.1940 |
| D13 | 1 | 59.75 | 59.75 | 91.1 | 1858.9 | 74.4118 |
| D13 | 1 | 60.75 | 60.75 | 96.3 | 1853.7 | 80.6005 |
| D13 | 1 | 61.75 | 61.75 | 104.2 | 1845.8 | 48.2877 |
| D13 | 1 | 63.25 | 63.25 | 115.1 | 1834.9 | 63.5417 |
| D13 | 1 | 65.25 | 65.25 | 120.6 | 1829.4 | 25.0000 |
| D13 | 1 | 66.25 | 66.25 | 129.0 | 1821.0 | 15.1899 |
| D13 | 1 | 67.75 | 67.75 | 131.8 | 1818.2 | 12.3711 |
| D13 | 1 | 68.25 | 68.25 | 137.6 | 1812.4 | 3.9216 |
| D13 | 1 | 69.25 | 69.25 | 149.3 | 1800.7 | 2.2599 |
| D13 | 1 | 71.25 | 71.25 | 155.2 | 1794.8 | 6.3158 |
| D13 | 1 | 72.25 | 72.25 | 164.3 | 1785.7 | 7.8370 |
| D13 | 1 | 73.75 | 73.75 | 170.4 | 1779.6 | 1.8868 |
| D13 | 1 | 74.75 | 74.75 | 176.6 | 1773.4 | 10.8571 |
| D13 | 1 | 75.75 | 75.75 | 182.9 | 1767.1 | 11.1111 |
| D13 | 1 | 76.75 | 76.75 | 189.2 | 1760.8 | 17.1717 |
| D13 | 1 | 77.75 | 77.75 | 195.6 | 1754.4 | 14.4279 |
| D13 | 1 | 78.75 | 78.75 | 202.1 | 1747.9 | 10.9756 |
| D13 | 1 | 79.75 | 79.75 | 208.6 | 1741.4 | 8.1081 |
| D13 | 1 | 80.75 | 80.75 | 213.2 | 1736.8 | 8.4416 |
| D13 | 2 | 32.25 | 81.45 | 226.6 | 1723.4 | 19.1011 |
| D13 | 2 | 34.25 | 83.45 | 240.2 | 1709.8 | 13.7931 |
| D13 | 2 | 36.25 | 85.45 | 254.1 | 1695.9 | 11.9241 |
| D13 | 2 | 38.25 | 87.45 | 268.3 | 1681.7 | 7.7114 |
| D13 | 2 | 40.25 | 89.45 | 282.6 | 1667.4 | 7.2948 |
| D13 | 2 | 42.25 | 91.45 | 297.3 | 1652.7 | 8.8398 |
| D13 | 2 | 44.25 | 93.45 | 312.1 | 1637.9 | 8.4592 |
| D13 | 2 | 46.25 | 95.45 | 327.3 | 1622.7 | 9.6447 |
| D13 | 2 | 48.25 | 97.45 | 346.5 | 1603.5 | 11.2299 |

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|---|---|---|---|---|---|---|
| D13 | 2 | 50.75 | 99.95 | 354.3 | 1595.7 | 21.7647 |
| D13 | 2 | 51.75 | 100.95 | 362.1 | 1587.9 | 13.9738 |
| D13 | 2 | 52.75 | 101.95 | 370.0 | 1580.0 | 15.1515 |
| D13 | 2 | 53.75 | 102.95 | 378.0 | 1572.0 | 10.6061 |
| D13 | 2 | 54.75 | 103.95 | 386.0 | 1564.0 | 16.0000 |
| D13 | 2 | 55.75 | 104.95 | 394.1 | 1555.9 | 16.5414 |
| D13 | 2 | 56.75 | 105.95 | 402.2 | 1547.8 | 4.8193 |
| D13 | 2 | 57.75 | 106.95 | 410.4 | 1539.6 | 21.7687 |
| D13 | 2 | 58.75 | 107.95 | 418.7 | 1531.3 | 13.3028 |
| D13 | 2 | 59.75 | 108.95 | 427.0 | 1523.0 | 18.4100 |
| D13 | 2 | 60.75 | 109.95 | 435.3 | 1514.7 | 17.2566 |
| D13 | 2 | 61.75 | 110.95 | 443.7 | 1506.3 | 21.3592 |
| D13 | 2 | 62.75 | 111.95 | 452.2 | 1497.8 | 22.3214 |
| D13 | 2 | 63.75 | 112.95 | 460.7 | 1489.3 | 13.6150 |
| D13 | 2 | 64.75 | 113.95 | 469.3 | 1480.7 | 18.0180 |
| D13 | 2 | 65.75 | 114.95 | 477.9 | 1472.1 | 11.4833 |
| D13 | 2 | 66.75 | 115.95 | 486.6 | 1463.4 | 6.6102 |
| D13 | 2 | 67.75 | 116.95 | 495.3 | 1454.7 | 10.7018 |
| D13 | 2 | 68.75 | 117.95 | 504.0 | 1446.0 | 2.7027 |
| D13 | 2 | 69.75 | 118.95 | 508.5 | 1441.5 | 4.1463 |
| D13 | 2 | 70.25 | 119.45 | 512.9 | 1437.1 | 3.3803 |
| D13 | 2 | 70.75 | 119.95 | 521.7 | 1428.3 | 12.0805 |
| D13 | 2 | 71.75 | 120.95 | 530.7 | 1419.3 | 11.4286 |
| D13 | 2 | 72.75 | 121.95 | 544.1 | 1405.9 | 1.7341 |
| D13 | 2 | 74.25 | 123.45 | 557.7 | 1392.3 | 22.9167 |
| D13 | 2 | 75.75 | 124.95 | 566.8 | 1383.2 | 5.9211 |
| D13 | 2 | 76.75 | 125.95 | 571.4 | 1378.6 | 2.5210 |
| D13 | 2 | 77.25 | 126.45 | 585.2 | 1364.8 | 4.0541 |
| D13 | 2 | 78.75 | 127.95 | 594.5 | 1355.5 | 4.8780 |
| D13 | 2 | 79.75 | 128.95 | 599.1 | 1350.9 | 6.3830 |
| D13 | 2 | 80.25 | 129.45 | 603.8 | 1346.2 | 30.0000 |
| D13 | 2 | 80.75 | 129.95 | 613.1 | 1336.9 | 0.6782 |
| D13 | 2 | 81.75 | 130.95 | 613.1 | 1336.9 | 1.7145 |
| D13 | 2 | 81.75 | 130.95 | 617.8 | 1332.2 | 7.4074 |
| D13 | 2 | 82.25 | 131.45 | 622.5 | 1327.5 | 2.0833 |
| D13 | 2 | 82.75 | 131.95 | 632.0 | 1318.0 | 0.3004 |
| D13 | 2 | 83.75 | 132.95 | 632.0 | 1318.0 | 11.2289 |
| D13 | 2 | 83.75 | 132.95 | 636.7 | 1313.3 | 20.4082 |
| D13 | 2 | 84.25 | 133.45 | 641.5 | 1308.5 | 38.4615 |
| D13 | 2 | 84.75 | 133.95 | 651.0 | 1299.0 | 14.7783 |
| D13 | 2 | 85.75 | 134.95 | 651.0 | 1299.0 | 9.0772 |

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|---|---|---|---|---|---|---|
| D13 | 2 | 85.75 | 134.95 | 655.8 | 1294.2 | 1.3699 |
| D13 | 2 | 86.25 | 135.45 | 660.6 | 1289.4 | 13.2075 |
| D13 | 2 | 86.75 | 135.95 | 673.1 | 1276.9 | 6.4988 |
| D-13 | 3 | 17.25 | 137.25 | 682.8 | 1267.2 | 6.3855 |
| D-13 | 3 | 18.25 | 138.25 | 692.5 | 1257.5 | 5.0610 |
| D-13 | 3 | 19.25 | 139.25 | 702.3 | 1247.7 | 20.1075 |
| D-13 | 3 | 20.25 | 140.25 | 712.1 | 1237.9 | 13.2738 |
| D-13 | 3 | 21.25 | 141.25 | 721.9 | 1228.1 | 21.3291 |
| D-13 | 3 | 22.25 | 142.25 | 731.8 | 1218.2 | 14.4172 |
| D-13 | 3 | 23.25 | 143.25 | 746.7 | 1203.3 | 26.6279 |
| D13 | 3 | 24.75 | 144.75 | 746.7 | 1203.3 | 12.1951 |
| D13 | 3 | 24.75 | 144.75 | 751.7 | 1198.3 | 21.2598 |
| D13 | 3 | 25.25 | 145.25 | 756.7 | 1193.3 | 7.2581 |
| D13 | 3 | 25.75 | 145.75 | 766.8 | 1183.2 | 14.7059 |
| D13 | 3 | 26.75 | 146.75 | 766.8 | 1183.2 | 25.6046 |
| D13 | 3 | 26.75 | 146.75 | 776.8 | 1173.2 | 30.4878 |
| D13 | 3 | 27.75 | 147.75 | 776.8 | 1173.2 | 25.0757 |
| D13 | 3 | 27.75 | 147.75 | 787.0 | 1163.0 | 32.2581 |
| D13 | 3 | 28.75 | 148.75 | 787.0 | 1163.0 | 19.4444 |
| D13 | 3 | 28.75 | 148.75 | 797.1 | 1152.9 | 27.2340 |
| D13 | 3 | 29.75 | 149.75 | 797.1 | 1152.9 | 28.1376 |
| D13 | 3 | 29.75 | 149.75 | 807.3 | 1142.7 | 17.0103 |
| D13 | 3 | 30.75 | 150.75 | 807.3 | 1142.7 | 2.5907 |
| D13 | 3 | 30.75 | 150.75 | 812.4 | 1137.6 | 14.5833 |
| D13 | 3 | 31.25 | 151.25 | 817.6 | 1132.4 | 1.7857 |
| D13 | 3 | 31.75 | 151.75 | 822.7 | 1127.3 | 31.5162 |
| D-13 | 3 | 32.25 | 152.25 | 833.0 | 1117.0 | 53.7906 |
| D-13 | 3 | 33.25 | 153.25 | 843.3 | 1106.7 | 43.2432 |
| D-13 | 3 | 34.25 | 154.25 | 853.7 | 1096.3 | 40.0000 |
| D-13 | 3 | 35.25 | 155.25 | 864.1 | 1085.9 | 38.5417 |
| D-13 | 3 | 36.25 | 156.25 | 874.5 | 1075.5 | 42.9864 |
| D-13 | 3 | 37.25 | 157.25 | 885.0 | 1065.0 | 27.1739 |
| D-13 | 3 | 38.25 | 158.25 | 895.5 | 1054.5 | 29.6703 |
| D-13 | 3 | 39.25 | 159.25 | 906.1 | 1043.9 | 30.0000 |
| D-13 | 3 | 40.25 | 160.25 | 916.7 | 1033.3 | 37.5000 |
| D-13 | 3 | 41.25 | 161.25 | 927.3 | 1022.7 | 19.2513 |
| D-13 | 3 | 42.25 | 162.25 | 938.0 | 1012.0 | 34.1837 |
| D-13 | 3 | 43.25 | 163.25 | 948.7 | 1001.3 | 30.9278 |
| D-13 | 3 | 44.25 | 164.25 | 959.4 | 990.6 | 43.1373 |
| D-13 | 3 | 45.25 | 165.25 | 970.2 | 979.8 | 36.4807 |
| D-13 | 3 | 46.25 | 166.25 | 981.0 | 969.0 | 36.4078 |

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|---|---|---|---|---|---|---|
| D-13 | 3 | 47.25 | 167.25 | 991.8 | 958.2 | 32.8205 |
| D-13 | 3 | 48.25 | 168.25 | 1002.7 | 947.3 | 31.1224 |
| D-13 | 3 | 49.25 | 169.25 | 1013.6 | 936.4 | 37.2549 |
| D-13 | 3 | 50.25 | 170.25 | 1024.5 | 925.5 | 29.3103 |
| D-13 | 3 | 51.25 | 171.25 | 1035.5 | 914.5 | 20.5405 |
| D-13 | 3 | 52.25 | 172.25 | 1046.5 | 903.5 | 26.9663 |
| D-13 | 3 | 53.25 | 173.25 | 1057.6 | 892.4 | 13.8462 |
| D-13 | 3 | 54.25 | 174.25 | 1068.6 | 881.4 | 26.7327 |
| D-13 | 3 | 55.25 | 175.25 | 1079.7 | 870.3 | 26.6304 |
| D-13 | 3 | 56.25 | 176.25 | 1090.8 | 859.2 | 24.7312 |
| D13 | 3 | 57.25 | 177.25 | 1096.4 | 853.6 | 22.1875 |
| D13 | 3 | 57.75 | 177.75 | 1102.0 | 848.0 | 18.9848 |
| D-13 | 3 | 58.25 | 178.25 | 1113.2 | 836.8 | 30.8511 |
| D-13 | 3 | 59.25 | 179.25 | 1124.4 | 825.6 | 30.8411 |
| D-13 | 3 | 60.25 | 180.25 | 1135.7 | 814.3 | 29.0476 |
| D-13 | 3 | 61.25 | 181.25 | 1146.9 | 803.1 | 36.6812 |
| D-13 | 3 | 62.25 | 182.25 | 1158.3 | 791.7 | 36.3229 |
| D-13 | 3 | 63.25 | 183.25 | 1169.6 | 780.4 | 32.1951 |
| D-13 | 3 | 64.25 | 184.25 | 1181.0 | 769.0 | 19.8953 |
| D-13 | 3 | 65.25 | 185.25 | 1192.4 | 757.6 | 39.6135 |
| D-13 | 3 | 66.25 | 186.25 | 1203.8 | 746.2 | 43.0622 |
| D-13 | 3 | 67.25 | 187.25 | 1215.2 | 734.8 | 31.8386 |
| D-13 | 3 | 68.25 | 188.25 | 1226.7 | 723.3 | 38.4615 |
| D-13 | 3 | 69.25 | 189.25 | 1238.2 | 711.8 | 46.1538 |
| D-13 | 3 | 70.25 | 190.25 | 1249.8 | 700.2 | 32.6087 |
| D-13 | 3 | 71.25 | 191.25 | 1261.3 | 688.7 | 44.7826 |
| D-13 | 3 | 72.25 | 192.25 | 1272.9 | 677.1 | 23.0366 |
| D-13 | 3 | 73.25 | 193.25 | 1284.6 | 665.4 | 41.0138 |
| D-13 | 3 | 74.25 | 194.25 | 1296.2 | 653.8 | 53.5211 |
| D-13 | 3 | 75.25 | 195.25 | 1307.9 | 642.1 | 21.4286 |
| D-13 | 3 | 76.25 | 196.25 | 1319.6 | 630.4 | 28.1407 |
| D-13 | 3 | 77.25 | 197.25 | 1331.3 | 618.7 | 45.1064 |
| D-13 | 3 | 78.25 | 198.25 | 1343.0 | 607.0 | 26.2911 |
| D-13 | 3 | 79.25 | 199.25 | 1354.8 | 595.2 | 36.2445 |
| D-13 | 3 | 80.25 | 200.25 | 1366.6 | 583.4 | 25.3589 |
| D-13 | 3 | 81.25 | 201.25 | 1378.4 | 571.6 | 35.4369 |
| D-13 | 3 | 82.25 | 202.25 | 1390.3 | 559.7 | 35.0711 |
| D-13 | 3 | 83.25 | 203.25 | 1402.1 | 547.9 | 23.1884 |
| D-13 | 3 | 84.25 | 204.25 | 1414.0 | 536.0 | 26.8293 |
| D-13 | 3 | 85.25 | 205.25 | 1426.0 | 524.0 | 32.4675 |
| D-13 | 3 | 86.25 | 206.25 | 1437.9 | 512.1 | 26.3682 |

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| D-13 | 3 | 87.25 | 207.25 | 1449.9 | 500.1 | 34.0611 |
| D-13 | 3 | 88.25 | 208.25 | 1452.3 | 497.7 | 26.2887 |
| D13 | 4 | 19.25 | 208.45 | 1464.2 | 485.8 | 18.9189 |
| D13 | 4 | 20.25 | 209.45 | 1476.3 | 473.7 | 29.6482 |
| D13 | 4 | 21.25 | 210.45 | 1488.3 | 461.7 | 35.6757 |
| D13 | 4 | 22.25 | 211.45 | 1500.4 | 449.6 | 31.5789 |
| D13 | 4 | 23.25 | 212.45 | 1512.4 | 437.6 | 20.1058 |
| D13 | 4 | 24.25 | 213.45 | 1524.5 | 425.5 | 30.3419 |
| D13 | 4 | 25.25 | 214.45 | 1536.7 | 413.3 | 17.7665 |
| D13 | 4 | 26.25 | 215.45 | 1548.8 | 401.2 | 18.1818 |
| D13 | 4 | 27.25 | 216.45 | 1561.0 | 389.0 | 32.1569 |
| D13 | 4 | 28.25 | 217.45 | 1573.2 | 376.8 | 26.4706 |
| D13 | 4 | 29.25 | 218.45 | 1585.4 | 364.6 | 26.8293 |
| D13 | 4 | 30.25 | 219.45 | 1597.6 | 352.4 | 26.1468 |
| D13 | 4 | 31.25 | 220.45 | 1609.9 | 340.1 | 24.8780 |
| D13 | 4 | 32.25 | 221.45 | 1622.1 | 327.9 | 18.1818 |
| D13 | 4 | 33.25 | 222.45 | 1634.4 | 315.6 | 9.6447 |
| D13 | 4 | 34.25 | 223.45 | 1646.7 | 303.3 | 34.7826 |
| D13 | 4 | 35.25 | 224.45 | 1659.0 | 291.0 | 35.9375 |
| D13 | 4 | 36.25 | 225.45 | 1671.4 | 278.6 | 18.0952 |
| D13 | 4 | 37.25 | 226.45 | 1683.8 | 266.2 | 20.3980 |
| D13 | 4 | 38.25 | 227.45 | 1696.1 | 253.9 | 15.6069 |
| D13 | 4 | 39.25 | 228.45 | 1708.5 | 241.5 | 20.1149 |
| D13 | 4 | 40.25 | 229.45 | 1721.0 | 229.0 | 13.0890 |
| D13 | 4 | 41.25 | 230.45 | 1733.4 | 216.6 | 16.4948 |
| D13 | 4 | 42.25 | 231.45 | 1745.9 | 204.1 | 27.4194 |
| D13 | 4 | 43.25 | 232.45 | 1758.3 | 191.7 | 23.0366 |
| D13 | 4 | 44.25 | 233.45 | 1770.8 | 179.2 | 28.7288 |
| D13 | 4 | 45.25 | 234.45 | 1783.3 | 166.7 | 22.8571 |
| D13 | 4 | 46.25 | 235.45 | 1795.9 | 154.1 | 16.1667 |
| D13 | 4 | 47.25 | 236.45 | 1808.4 | 141.6 | 22.5751 |
| D13 | 4 | 48.25 | 237.45 | 1821.0 | 129.0 | 16.9588 |
| D13 | 4 | 49.25 | 238.45 | 1833.5 | 116.5 | 19.2704 |
| D13 | 4 | 50.25 | 239.45 | 1846.1 | 103.9 | 14.5128 |
| D13 | 4 | 51.25 | 240.45 | 1858.7 | 91.3 | 15.4106 |
| D13 | 4 | 52.25 | 241.45 | 1871.4 | 78.6 | 19.1388 |
| D13 | 4 | 53.25 | 242.45 | 1884.0 | 66.0 | 15.7522 |
| D13 | 4 | 54.25 | 243.45 | 1896.7 | 53.3 | 18.5990 |
| D13 | 4 | 55.25 | 244.45 | 1909.3 | 40.7 | 25.7895 |
| D13 | 4 | 56.25 | 245.45 | 1922.0 | 28.0 | 23.3929 |
| D13 | 4 | 57.25 | 246.45 | 1934.7 | 15.3 | 17.5949 |

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|---|---|---|---|---|---|---|
| D13 | 4 | 58.25 | 247.45 | 1947.5 | 2.5 | 21.0092 |
| D13 | 4 | 59.25 | 248.45 | 1960.2 | -10.2 | 43.7500 |
| D13 | 4 | 60.25 | 249.45 | 1972.9 | -22.9 | 32.3024 |
| D13 | 4 | 61.25 | 250.45 | 1985.7 | -35.7 | 43.8017 |
| D13 | 4 | 62.25 | 251.45 | 1998.5 | -48.5 | 27.7778 |
| D13 | 4 | 63.25 | 252.45 | 2011.3 | -61.3 | 35.7934 |
| D13 | 4 | 64.25 | 253.45 | 2024.1 | -74.1 | 23.7226 |
| D13 | 4 | 65.25 | 254.45 | 2036.9 | -86.9 | 13.1148 |
| D13 | 4 | 66.25 | 255.45 | 2049.7 | -99.7 | 16.6667 |
| D13 | 4 | 67.25 | 256.45 | 2062.6 | -112.6 | 29.1667 |
| D13 | 4 | 68.25 | 257.45 | 2075.4 | -125.4 | 25.0965 |
| D13 | 4 | 69.25 | 258.45 | 2088.3 | -138.3 | 26.6667 |
| D13 | 4 | 70.25 | 259.45 | 2101.2 | -151.2 | 22.3108 |
| D13 | 4 | 71.25 | 260.45 | 2114.1 | -164.1 | 32.1429 |
| D13 | 4 | 72.25 | 261.45 | 2127.0 | -177.0 | 31.1966 |
| D13 | 4 | 73.25 | 262.45 | 2139.9 | -189.9 | 24.1379 |
| D13 | 4 | 74.25 | 263.45 | 2152.9 | -202.9 | 20.7407 |
| D13 | 4 | 75.25 | 264.45 | 2165.8 | -215.8 | 19.2308 |
| D13 | 4 | 76.25 | 265.45 | 2178.8 | -228.8 | 19.6721 |
| D13 | 4 | 77.25 | 266.45 | 2191.8 | -241.8 | 27.3684 |
| D13 | 4 | 78.25 | 267.45 | 2204.7 | -254.7 | 15.9322 |
| D13 | 4 | 79.25 | 268.45 | 2217.7 | -267.7 | 33.3333 |
| D13 | 4 | 80.25 | 269.45 | 2230.7 | -280.7 | 29.7945 |
| D13 | 4 | 81.25 | 270.45 | 2243.8 | -293.8 | 24.5614 |
| D13 | 4 | 82.25 | 271.45 | 2256.8 | -306.8 | 26.7123 |

## Appendix G: Water Column Sampling Results

| Date | Depth | LDO (mg/L) | Turb (NTU) | ORP (mv) | pH | TDS (G/L) | Sal (ppt) | Cond (µS/cm) | Temp (C) | Alk |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/27/13 | 0 | 8.57 | 0 | 299 | 8.28 | 0.4271 | 0.34 | 667 | 18.28 | Not Sampled |
| 5/27/13 | 1 | 8.62 | 0 | 297 | 8.27 | 0.4271 | 0.34 | 667.1 | 18.34 | Not Sampled |
| 5/27/13 | 2 | 8.6 | 0 | 297 | 8.12 | 0.4299 | 0.35 | 677.8 | 18.2 | Not Sampled |
| 5/27/13 | 3 | 8.89 | 0 | 302 | 7.93 | 0.3876 | 0.31 | 662.7 | 13.97 | Not Sampled |
| 5/27/13 | 4 | 7.32 | 0 | 306 | 7.71 | 0.3557 | 0.28 | 555.7 | 9.97 | Not Sampled |
| 5/27/13 | 5 | 6.49 | 0 | 308 | 7.66 | 0.3793 | 0.3 | 589.1 | 8.06 | Not Sampled |
| 5/27/13 | 6 | 6.56 | 0 | 309 | 7.72 | 0.4242 | 0.34 | 660.7 | 7.3 | Not Sampled |
| 5/27/13 | 7 | 7.06 | 0 | 310 | 7.77 | 0.4599 | 0.37 | 719.8 | 6.59 | Not Sampled |
| 5/27/13 | 8 | 6.73 | 0 | 311 | 7.73 | 0.4622 | 0.37 | 721.3 | 5.68 | Not Sampled |
| 5/27/13 | 9 | 6.65 | 0 | 312 | 7.7 | 0.4613 | 0.37 | 720.8 | 5.04 | Not Sampled |
| 5/27/13 | 10 | 6.76 | 0 | 312 | 7.71 | 0.4614 | 0.37 | 720.7 | 4.54 | Not Sampled |
| 5/27/13 | 11 | 6.6 | 0 | 313 | 7.7 | 0.4613 | 0.37 | 721.4 | 4.25 | Not Sampled |
| 5/27/13 | 12 | 4.87 | 0 | 314 | 7.64 | 0.462 | 0.37 | 721.7 | 4.21 | Not Sampled |
| 5/27 | 13 | 2.92 | 0 | 315 | 7. | 0.462 | 0.37 | 723.2 | 4.19 | Not |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| /13 | | | | | 58 | 9 | | | | Sampled |
| 5/27/13 | 14 | 0.44 | 0 | 316 | 7.52 | 0.4656 | 0.38 | 728.1 | 4.14 | Not Sampled |
| 5/27/13 | 15 | 0.04 | 0 | 317 | 7.55 | 0.4727 | 0.38 | 738.3 | 4.17 | Not Sampled |
| 5/27/13 | 16 | 0 | 6 | 128 | 7.54 | 0.4986 | 0.41 | 784.4 | 4.26 | Not Sampled |
| 9/14/13 | 0 | Not Working | 0 | 309 | 8.5 | 0.3889 | 0.31 | 607.4 | 22.43 | Not Sampled |
| 9/14/13 | 1 | Not Working | 0 | 309 | 8.5 | 0.3889 | 0.31 | 607.4 | 22.43 | Not Sampled |
| 9/14/13 | 2 | Not Working | 0 | 308 | 8.49 | 0.3887 | 0.31 | 607.5 | 22.24 | Not Sampled |
| 9/14/13 | 3 | Not Working | 0 | 308 | 8.5 | 0.3882 | 0.31 | 606.5 | 22.12 | Not Sampled |
| 9/14/13 | 4 | Not Working | 0 | 312 | 8.3 | 0.3723 | 0.3 | 578.6 | 20.28 | Not Sampled |
| 9/14/13 | 5 | Not Working | 0 | 319 | 8.05 | 0.3644 | 0.29 | 570.3 | 14.68 | Not Sampled |
| 9/14/13 | 6 | Not Working | 0 | 324 | 7.91 | 0.3963 | 0.31 | 611 | 11.34 | Not Sampled |
| 9/14/13 | 7 | Not Working | 0 | 328 | 7.84 | 0.4231 | 0.34 | 659.7 | 7.76 | Not Sampled |
| 9/14/13 | 8 | Not Working | 0 | 329 | 7.79 | 0.4226 | 0.34 | 654.3 | 6.68 | Not Sampled |
| 9/14/13 | 9 | Not Working | 0 | 331 | 7.73 | 0.4219 | 0.34 | 657.2 | 5.6 | Not Sampled |
| 9/14/13 | 10 | Not Working | 0 | 331 | 7.72 | 0.4212 | 0.34 | 658.2 | 5.24 | Not Sampled |
| 9/14 | 11 | Not | 0 | 331 | 7. | 0.422 | 0.34 | 660.2 | 4.87 | Not |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| /13 | | Working | | | 7 | 4 | | | | Sampled |
| 9/14/13 | 12 | Not Working | 0 | 330 | 7.72 | 0.4229 | 0.34 | 661.1 | 4.64 | Not Sampled |
| 9/14/13 | 13 | Not Working | 0 | 330 | 7.72 | 0.4242 | 0.34 | 662.7 | 4.56 | Not Sampled |
| 9/14/13 | 14 | Not Working | 0 | 329 | 7.75 | 0.4275 | 0.34 | 668.3 | 4.52 | Not Sampled |
| 9/14/13 | 15 | Not Working | 0 | 324 | 7.76 | 0.4416 | 0.36 | 391.2 | 4.46 | Not Sampled |
| 9/14/13 | 16 | Not Working | 2.5 | -60 | 7.79 | 0.5351 | 0.44 | 829 | 4.56 | Not Sampled |
| 9/14/13 | 16.5 | Not Working | 100+ | -86 | 7.7 | 0.7373 | 0.58 | 1.1514 | 4.55 | Not Sampled |
| 10/19/13 | 0 | 9.9 | 0 | 393 | 8.34 | 0.3729 | 0.3 | 583.3 | 15.07 | Not Sampled |
| 10/19/13 | 1 | 9.85 | 0 | 395 | 8.34 | 0.373 | 0.3 | 582.8 | 15.1 | Not Sampled |
| 10/19/13 | 2 | 9.88 | 0 | 396 | 8.35 | 0.373 | 0.3 | 584.2 | 15.09 | Not Sampled |
| 10/19/13 | 3 | 9.91 | 0 | 396 | 8.33 | 0.373 | 0.3 | 582.8 | 15.09 | Not Sampled |
| 10/19/13 | 4 | 9.9 | 0 | 398 | 8.35 | 0.3731 | 0.3 | 582.5 | 15.08 | Not Sampled |
| 10/19/13 | 5 | 9.89 | 0 | 399 | 8.33 | 0.3731 | 0.3 | 582.7 | 15.09 | Not Sampled |
| 10/19/13 | 6 | 3.91 | 1.3 | 415 | 7.59 | 0.3903 | 0.31 | 606.3 | 12.58 | Not Sampled |
| 10/19/13 | 7 | 0.49 | 2 | 418 | 7.46 | 0.4094 | 0.33 | 638.8 | 9.22 | Not Sampled |
| 10/1 | 8 | 1.05 | 2.1 | 298 | 7. | 0.412 | 0.33 | 643.1 | 7.02 | Not |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/13 | | | | | 32 | 5 | | | | Sampled |
| 10/19/13 | 9 | 0.17 | 2.2 | 301 | 7.41 | 0.4118 | 0.33 | 644.1 | 5.94 | Not Sampled |
| 10/19/13 | 10 | 0 | 2.2 | 304 | 7.43 | 0.4129 | 0.33 | 645.1 | 5.37 | Not Sampled |
| 10/19/13 | 11 | 0 | 2.2 | 310 | 7.45 | 0.4132 | 0.33 | 645.7 | 5.03 | Not Sampled |
| 10/19/13 | 12 | 0 | 2.1 | 313 | 7.46 | 0.4141 | 0.33 | 646.8 | 4.82 | Not Sampled |
| 10/19/13 | 13 | 0 | 2 | 316 | 7.47 | 0.4149 | 0.33 | 648.4 | 4.73 | Not Sampled |
| 10/19/13 | 14 | 0 | 2.1 | 318 | 7.49 | 0.4184 | 0.34 | 652.6 | 4.62 | Not Sampled |
| 10/19/13 | 15 | 0 | 2.2 | 308 | 7.51 | 0.4294 | 0.35 | 670.5 | 4.56 | Not Sampled |
| 10/19/13 | 16 | 0 | 4.4 | 13 | 7.45 | 0.4994 | 0.41 | 786.3 | 4.61 | Not Sampled |
| 11/23/13 | 0 | 9.88 | 1.1 | 402 | 8.1 | 0.3905 | 0.31 | 610.4 | 6.57 | 229 |
| 11/23/13 | 1 | 9.84 | 0.8 | 397 | 8.11 | 0.3905 | 0.31 | 610 | 6.53 | Not Sampled |
| 11/23/13 | 2 | 9.83 | 0.7 | 397 | 8.14 | 0.3905 | 0.31 | 610 | 6.6 | 235 |
| 11/23/13 | 3 | 9.86 | 0.7 | 396 | 8.14 | 0.3905 | 0.31 | 610.3 | 6.58 | Not Sampled |
| 11/23/13 | 4 | 9.85 | 0.7 | 395 | 8.15 | 0.3905 | 0.31 | 610.9 | 6.6 | 225 |
| 11/23/13 | 5 | 9.86 | 0.7 | 395 | 8.13 | 0.3914 | 0.31 | 610.4 | 6.59 | Not Sampled |
| 11/23/13 | 6 | 9.89 | 0.8 | 395 | 8.1 | 0.3903 | 0.31 | 610.1 | 6.6 | 230 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 4 | | | | | |
| 11/23/13 | 7 | 9.87 | 0.8 | 394 | 8.14 | 0.3905 | 0.31 | 610 | 6.59 | Not Sampled |
| 11/23/13 | 8 | 9.87 | 1 | 394 | 8.13 | 0.3906 | 0.31 | 610.3 | 6.59 | 230 |
| 11/23/13 | 9 | 9.5 | 1 | 394 | 8.12 | 0.391 | 0.31 | 610.7 | 6.56 | Not Sampled |
| 11/23/13 | 10 | 7.55 | 1.1 | 396 | 7.96 | 0.3947 | 0.32 | 617.2 | 6.41 | 240 |
| 11/23/13 | 11 | 0.1 | 1.2 | 400 | 7.68 | 0.4134 | 0.33 | 646.6 | 5.31 | Not Sampled |
| 11/23/13 | 12 | 0.1 | 1.3 | 401 | 7.56 | 0.4139 | 0.33 | 647.5 | 5.07 | 230 |
| 11/23/13 | 13 | 0 | 1.4 | 399 | 7.55 | 0.4155 | 0.33 | 649.8 | 4.98 | Not Sampled |
| 11/23/13 | 14 | 0 | 1.9 | 18 | 7.66 | 0.5201 | 0.42 | 812.4 | 4.92 | 240 |
| 11/23/13 | 15 | 0 | 100+ | 9 | 7.76 | 0.5199 | 0.42 | 812.4 | 4.95 | Not Sampled |

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**Curriculum Vitae**

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Bachelor of Science in Physics from Indiana University-Purdue University Indianapolis; May 2013; GPA: 3.14

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*Experience*

Quality Environmental Professionals Incorporated, Indianapolis, IN

START Contractor, May 2015—Present

- Performed groundwater monitoring activities including normal and low-flow sampling
- Oversaw field operations and collected samples in accordance with EPA protocols
- Operated and maintained field instruments including XRF analyzers, PIDs, and DataRAMs
- Wrote letter reports to document activities completed during projects

Indiana University Purdue University Indianapolis, Indianapolis, IN

Research/Teaching Assistant, August 2013—August 2015

- Analyzed and described sediment cores
- Planned and executed lab activities focused on hydrology, structural geology and soil science
- Created maps and performed computations using GIS software

Angel Mounds REU (NSF Award No. 1262530), Evansville, IN

Graduate Mentor, June 2013, May 2014—July 2014

- Trained fellows in laboratory and field methods
- Maintained positive relationships with team members during long hours

*Presentations*

December 2014: A laminated carbonate record of late Holocene mid-continental hydroclimate: Geochemical and sedimentological results from Martin Lake, LaGrange County, Indiana. Poster presented at the AGU Fall Meeting, San Francisco, California.

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*Skills*

- OSHA 40 Hour HAZWOPER certified
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